October 6, 1958

Paper Trade Journal

Norwegian Pulp and Paper Research Center

12th Annual Alkaline Pulping Conference

Australian Firm Uses Layout Models

Why Requirements Vary for Disk Refiners

When Gottesman enters the picture...

...technical service is yours for the asking

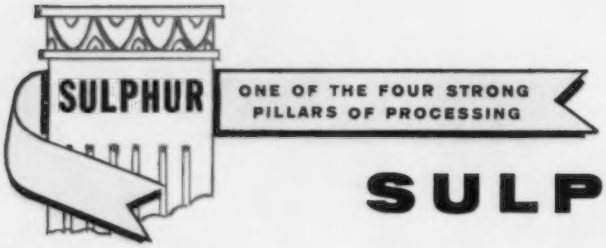
When production problems demand the help of the best technical specialists, Gottesman customers know where to turn. Technicians on the staff of our pulp suppliers stand ready to assist our customers. It's one of many "fine points" of service we provide because we know what's important in pulp.

The Gottesman Organization

Established 1886

GOTTESMAN & COMPANY, INC. • CENTRAL NATIONAL CORPORATION
CENTRAL NATIONAL COMMERCIAL COMPANY, INC.
100 PARK AVENUE, NEW YORK 17, N.Y.

Gottesman & Company Aktiebolag, Stockholm • Central National-Gottesman Limited, London • Representatives in 55 Leading World Markets



SULPHUR *and* STEEL

This fact may not be too well known: the steel industry consumes about 7% of all the elemental Sulphur or Sulphur existing in the form of sulphur gases, etc., produced in this country. Most of this Sulphur serves the steel industry in the form of Sulphuric Acid where it is used in pickling steel products but also to a considerable extent in plating them. And certain machine steels carry an appreciable amount of 'planted' Sulphur to impart desirable machining qualities. Seven percent of the total elemental Sulphur and equivalent Sulphur tonnage is quite substantial. Its use in steel emphasizes the importance of Sulphur to our whole economy. Much of this tonnage of steel-used Sulphur starts out at our mines in Texas where we serve as a major supplier of Sulphur to the manufacturers of Sulphuric Acid.

SULPHUR PRODUCING UNITS

• Newgulf, Texas • Spindletop, Texas
• Moss Bluff, Texas • Worland, Wyoming
• Fannett, Texas

TEXAS GULF SULPHUR CO.

75 East 45th Street, New York 17, N. Y.
811 Rusk Avenue, Houston 2, Texas

B.F.Goodrich

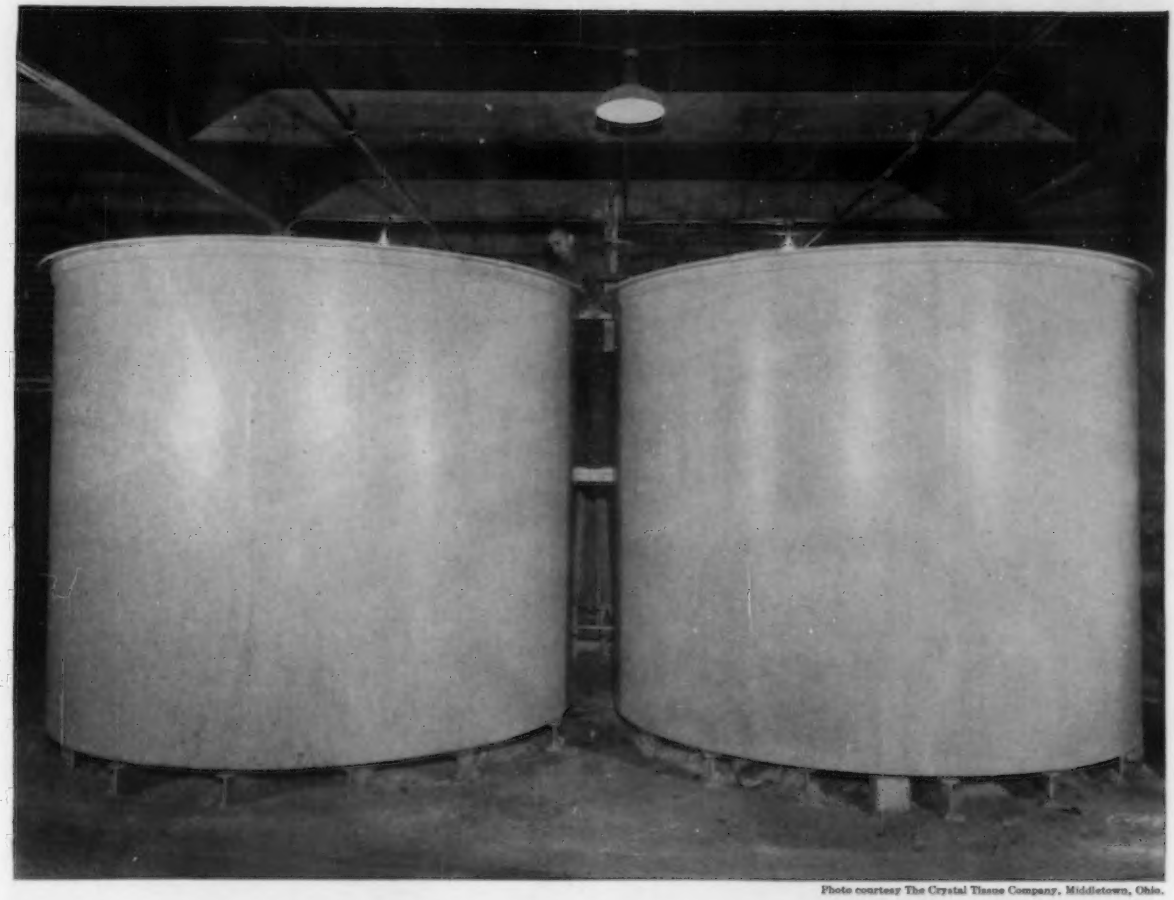


Photo courtesy The Crystal Tissue Company, Middletown, Ohio.

No holes, no leaks, no repairs—liquid alum stored safely in rubber

B. F. Goodrich improvements in rubber brought extra savings

Problem: This paper manufacturer wanted to cut costs by switching from powdered to liquid alum in their pulp mixture. But getting a tank to hold this corrosive solution was a problem. Wood tanks shrink, often leak. Lead-lined tanks require frequent repairs.

What was done: B. F. Goodrich engineers recommended Triflex rubber-lining for the two 5,000-gallon steel storage tanks. This lining is not one layer of rubber, but three—hard rubber for maximum corrosion resistance sandwiched between soft rubber for added protection.

Savings: Installed over 17 years ago, the B. F. Goodrich rubber-lined tanks pictured here are still in excellent condition, have needed no repairs on either the lining or the metal. The paper manufacturer feels that with proper care these tanks will last years more. Other tanks and pipe in the system are also B. F. Goodrich rubber-lined.

Why specify B. F. Goodrich: In the past 18 years, we have lined hundreds of tanks for alum service, as well as more than 75 railroad tank cars, several tank trucks, and thousands of pieces of pipe and fittings. While the initial cost of B. F. Goodrich rubber-lining is somewhat higher than wood or lead-lined tanks, the rubber-lined tanks do not leak, require little or no maintenance, and are, therefore, much more economical in the long run.

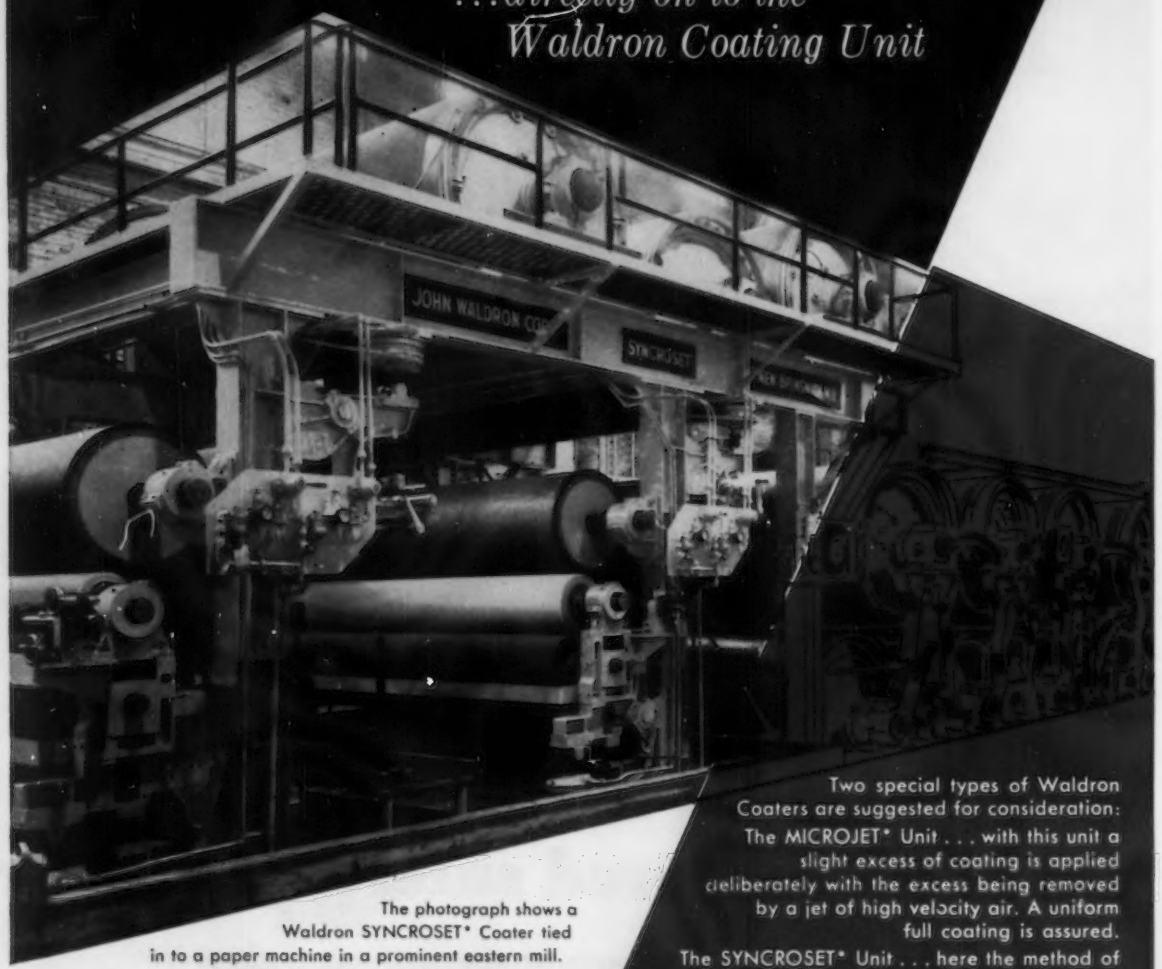
For more information, write *B. F. Goodrich Industrial Products Co., Tuscaloosa, Alabama, or Dept. M-459, Akron 18, O.*

B.F.Goodrich *industrial products*

WALDRON

Paper or board keeps on rolling along

...directly on to the Waldron Coating Unit



The photograph shows a Waldron SYNCROSET* Coater tied in to a paper machine in a prominent eastern mill. The customer saved money doing it this way, not only in initial and building costs but in handling the rolls between operations. The paper keeps on rolling right onto the coater. He is getting a better product, too.

Two special types of Waldron Coaters are suggested for consideration:

The MICROJET* Unit . . . with this unit a slight excess of coating is applied deliberately with the excess being removed by a jet of high velocity air. A uniform full coating is assured.

The SYNCROSET* Unit . . . here the method of coating is one of metered application, several rolls being employed. This unit can handle a somewhat denser coating slurry.

We might point out here that neither of these two units is installed on a 'royalty' basis. The buyer owns the unit outright. We are interested only in seeing that the buyer gets the best coater possible.

Why not get all the facts about these two coaters for that new unit you have in mind?

*Registered Trade Mark

THE MIDLAND-ROSS GROUP OF COMPLEMENTING SERVICES

J. O. Ross Engineering, New York
John Waldron Corporation, New Brunswick, N. J.
Andrews and Goodrich, Boston
Ross Engineering of Canada Limited, Montreal
Ross Midwest Fulton, Dayton
Hartig Extruders, Mountainside, N. J.
Carrier-Ross Engineering Company, Ltd., England

MR

JOHN WALDRON CORPORATION

Subsidiary of Midland-Ross Corporation
New Brunswick, New Jersey
CHICAGO • LOS ANGELES
West Coast Representative: Bojanower Machinery Service Company
5270 East Washington Boulevard • Los Angeles 22, California

Paper Trade Journal

PUBLISHED WEEKLY SINCE 1872

Published every Monday by Lockwood Trade Journal Co., Inc., 49 West 45th Street, New York 36

Phone: PLaza 7-2370
Cable Address: Lockmin

Week of OCTOBER 6, 1958—Vol. 142, No. 40

TRENDS 23

NEWS OF THE WEEK 25

FEATURE ARTICLES

Why and How Australian Paper Manufacturers Ltd. Uses Layout Models 40

New Headquarters for Norwegian Pulp and Paper Research Institute 46

Application of Disk Refining to Pulp and Paper Production 48

Alkaline Pulping Conference Brings Valuable Information 54

FIGURES OF THE WEEK 28
PAPER PEOPLE 30
NEW LITERATURE 34
NEW EQUIPMENT 58
PRICES OF MATERIALS 59
NEWS OF SUPPLIERS .. 60
OBITUARIES 61
PRICES OF FIBERS ... 62
CLASSIFIED ADVERTISING 66
INDEX OF ADVERTISERS 70

JOHN C. W. EVANS
Editor

PAUL D. VAN DERVEER
Associate Editor

R. E. THUEMMES
Associate Editor

J. A. BROPHY
Managing Editor

ARTHUR KUDNER
Assistant Editor

W. N. PERRY
Staff Artist

LOCKWOOD TRADE JOURNAL CO., INC.

GEORGE E. LOCKWOOD.....President and Treasurer
ARTHUR E. GORDON.....Vice President
FREDERICK E. WINKLER.....Secretary

Entered as Second Class Matter at the post office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office at Lockwood Trade Journal Co., Inc., 34 North Crystal St., East Stroudsburg, Pa. Printed in U.S.A.

Copyright 1958 by Lockwood Trade Journal Co., Inc. Paper established Feb. 17, 1899, combined with Paper Trade Journal Nov. 16, 1899. Paper established Sept. 21, 1910, combined with Paper Trade Journal February 19, 1926. All rights to the above titles reserved. Contents of Paper Trade Journal, including all articles, illustrations, etc., are copyrighted and may not be reprinted except by permission. Also publishers of Lockwood's Annual Directory of the Paper and Allied Trades.

REMEMBER THESE DATES

Oct. 7-8: Fibre Box Assn., Waldorf-Astoria Hotel, New York City.

Oct. 9-10: Fibre Drum Mfgrs. Assn., Drake Hotel, Chicago.

Oct. 9-10: TAPPI Deinking Conference, Dayton-Biltmore Hotel, Dayton, Ohio.

Oct. 20-22: TAPPI Paper-Plastics Conference, Kimball Hotel, Springfield, Mass.

SUBSCRIPTIONS →

Paper & Pulp Mills, Converters and their Personnel	1 yr.	2 yrs.	3 yrs.
United States	$5.00	$8.00	$10.00
Canada and U. S. Possessions	7.00	11.00	14.00

All others than above, price per year:
U. S.: $7.50—Canada and U. S. Possessions: $10.00.

Latin American Countries	15.00	25.00	30.00
All Other Countries	20.00	30.00	40.00

Single copy price of current issues:
North America 50c Foreign $1.00

R. E. BOETSCH Director of Circulation

PAPER TRADE JOURNAL—49 W. 45th St., N.Y. 36, N.Y.
Please enter a subscription with the mailing address as follows:

Name .....
Address .....
City ..... Zone .... State .....

If subscription is for an individual, please fill in:
Employer ..... City ..... State ...
Position ..... Employer's Business .....
Amount $ ..... ☐ Bill Me ☐ Bill Company ☐ Check Enclosed

NEW BAILEY
Multi-Pointer Gage

...has twice as many indicators
...no taller than a telephone!

Now the popular versatile Bailey Multi-Pointer Gage has been reduced in size to conserve control panel space—without loss of easy *readability*.

Each new Multi-Pointer Gage Unit offers you these three choices to—

1. Measure and indicate draft, pressure, differential pressure and level.
2. Transmit above variables either pneumatically or electrically to remote indicators, recorders and/or controllers.
3. Receive and indicate any measured variables which may be transmitted pneumatically by standard SAMA ranges of 3-15 psig. or 3-27 psig.

FEATURES

Compact Size—Two large, easily-read 7″ scales in space only 4 inches wide.

Wide Range Selection—Standard ranges from 0-0.5 in. H_2O to 0-5000 psig available.

Choice of Standard Colors—Satin Black, Slate Gray, Moss Green, or Terra Tan may be selected as an exterior color at no additional cost.

Colored Scales—Scales available in white, red, green, blue, yellow, or orange.

Fluorescent Illumination—All gages have slideout unit containing bulb and starter for ease of maintenance.

Readily Accessible Adjustments—Zero adjustment made from front of gage. Other adjustments made from rear of gage.

Two-point Positive Mounting—Gage unit mounted with two clips . . . no holes to drill or studs to weld.

Unlimited Indications—Any number of basic two-indicator units may be placed side-by-side to provide indications of related factors. Each two-indicator unit is separately mounted.

For additional information, call your local Bailey District Office, or write us direct.

P47-1

Pulp and paper division

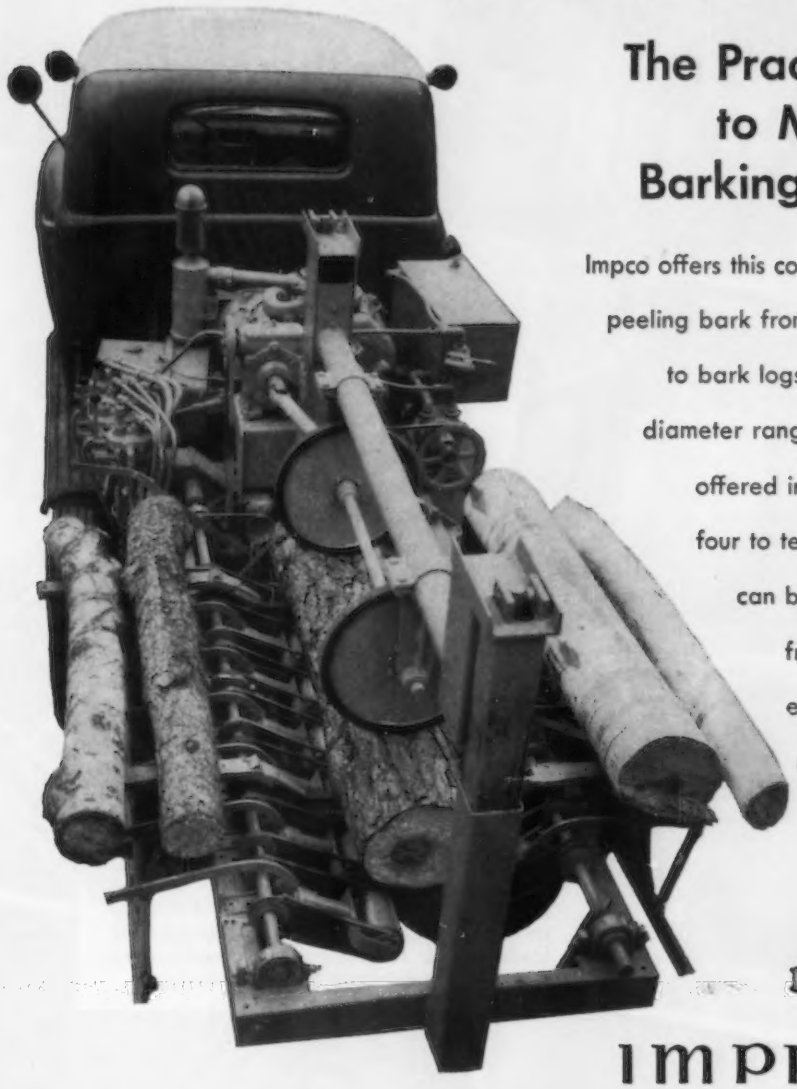
BAILEY METER COMPANY

1056 IVANHOE ROAD • CLEVELAND 10, OHIO

In Canada—Bailey Meter Company Limited, Montreal

BAILEY METERS

IMPCO
PORTA-PEELER
LOG BARKER



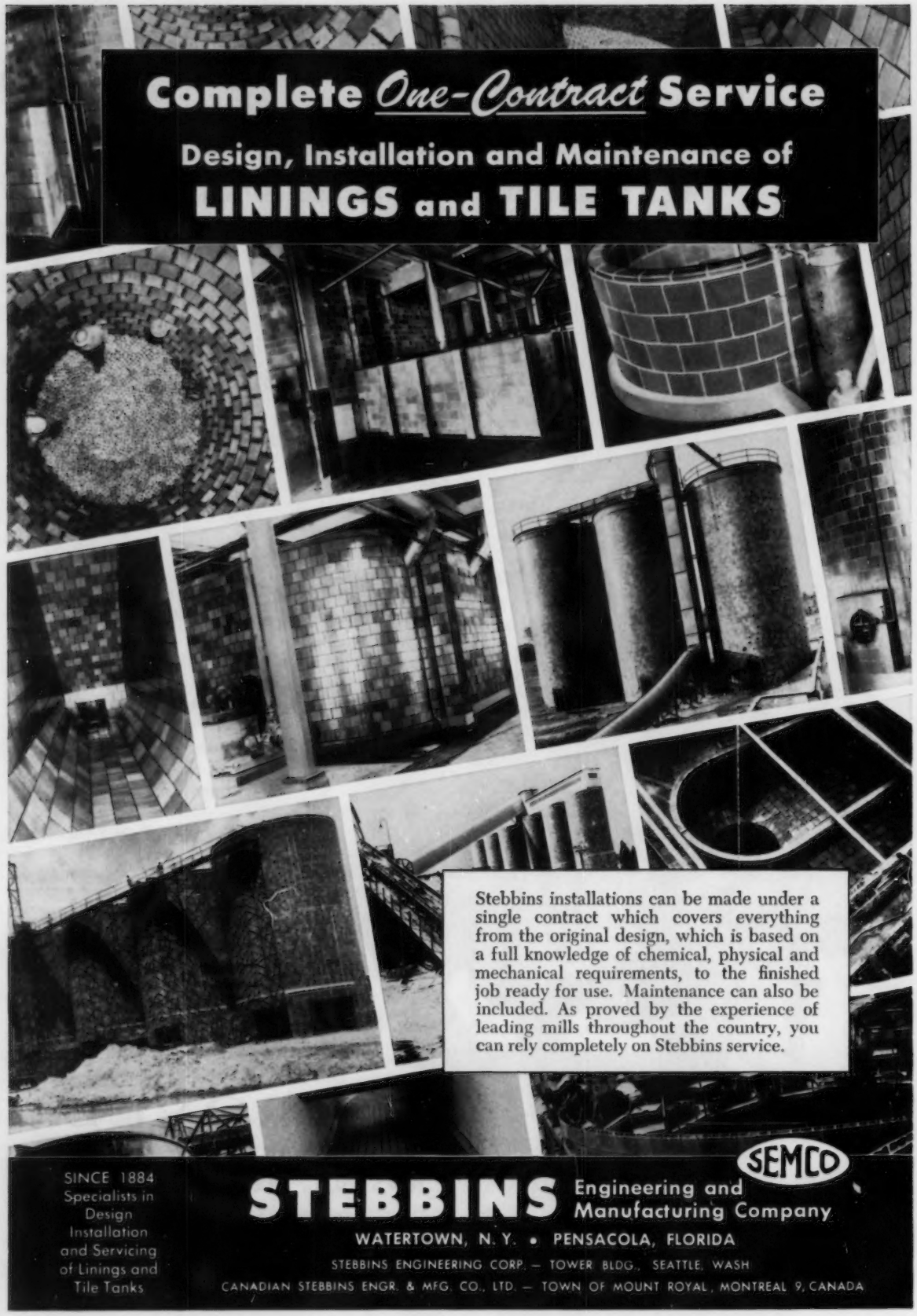
The Practical Answer to Multi-Unit Barking Operations

Impco offers this completely new portable unit for peeling bark from any type of wood. Designed to bark logs in the three to twenty-six inch diameter range, the side-fed Porta-Peeler is offered in various models for bolts from four to ten feet in length. 100% removal can be obtained even with crooked, frozen hardwood. One man can easily *Porta-Peel* four sticks per minute. For further information, write for Bulletin F1-2.

IMPCO®

IMPROVED
MACHINERY INC.
NASHUA, NEW HAMPSHIRE

In Canada, Sherbrooke Machineries Limited, Sherbrooke, Quebec



Complete *One-Contract* Service

Design, Installation and Maintenance of LININGS and TILE TANKS

Stebbins installations can be made under a single contract which covers everything from the original design, which is based on a full knowledge of chemical, physical and mechanical requirements, to the finished job ready for use. Maintenance can also be included. As proved by the experience of leading mills throughout the country, you can rely completely on Stebbins service.

SINCE 1884
Specialists in Design Installation and Servicing of Linings and Tile Tanks

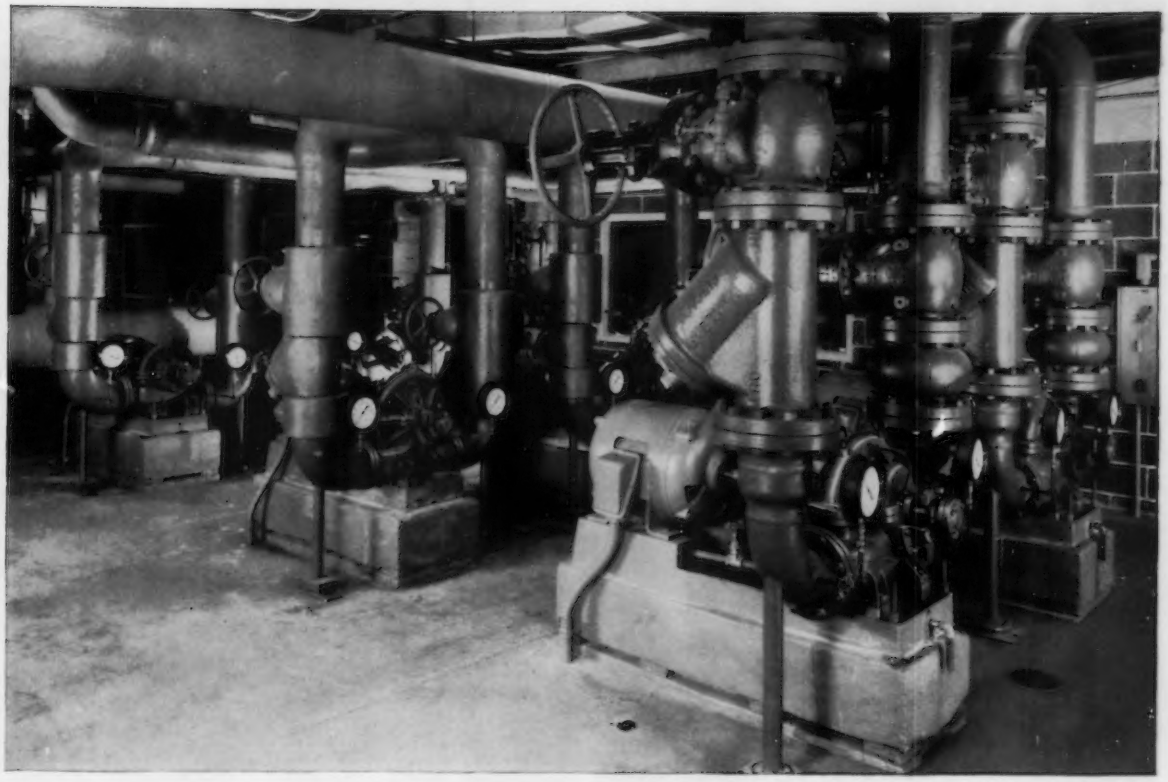
SEMCO

STEBBINS Engineering and Manufacturing Company

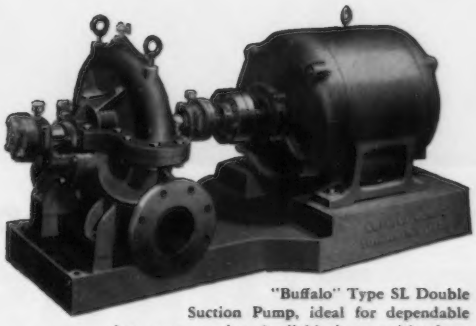
WATERTOWN, N. Y. • PENSACOLA, FLORIDA

STEBBINS ENGINEERING CORP. — TOWER BLDG., SEATTLE, WASH

CANADIAN STEBBINS ENGR. & MFG. CO., LTD. — TOWN OF MOUNT ROYAL, MONTREAL 9, CANADA



Here's high efficiency, low maintenance pumping



"Buffalo" Type SL Double Suction Pump, ideal for dependable clear water service. Available in capacities from 10 to 14,000 GPM.

Few industries rely as heavily on pumps as the paper industry. For this reason, many paper mills in this country depend on Buffalo Pumps for high efficiency, low maintenance service. Combining 81 years experience with modern construction, Buffalo Pumps offer many advantages to the busy mill man.

For example, in clear and white water service, "Buffalo" Type SL Double Suction Pumps such as those shown above assure you this longer lifespan of reliable performance. Their smooth hydraulic balance and high efficiency are the result of ample water passages, expertly engineered impellers and overall rugged construction.

Profit by the low maintenance service you will enjoy by specifying "Buffalo" Pumps. Write for Bulletin 995 today!

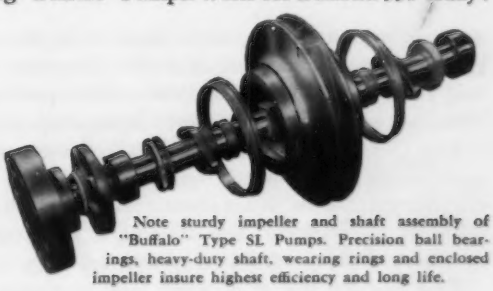
BUFFALO PUMPS

Division of Buffalo Forge Co.

159 Mortimer Street • Buffalo, N. Y.

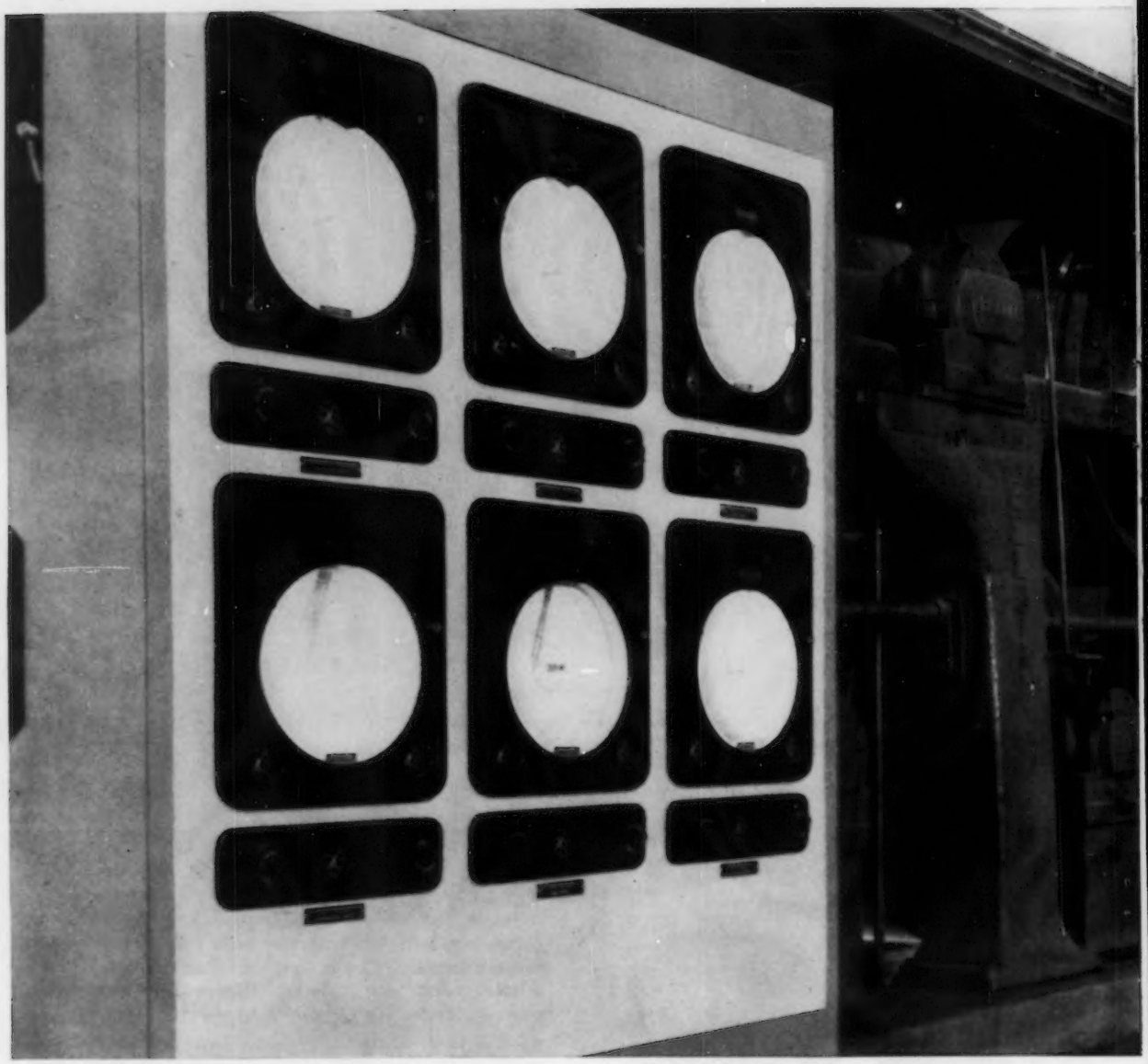
Canada Pumps, Ltd. • Kitchener, Ont.

Sales Representatives in All Principal Cities



Note sturdy impeller and shaft assembly of "Buffalo" Type SL Pumps. Precision ball bearings, heavy-duty shaft, wearing rings and enclosed impeller insure highest efficiency and long life.

A BETTER CENTRIFUGAL PUMP FOR EVERY LIQUID



397 lubrication demands at new Whippany mill met by only

GULF MAKES THINGS

Take the widest cylinder board machine in the world, geared to produce 500 tons of multi-layer paper a day. Add a versatile 240-inch Fourdrinier with speeds up to 1800 feet per minute. You've got a top-notch paper mill.

You also have hundreds of rolls and thousands of gears and bearings—which have a wide range of lubrication requirements. What about a lubrication chart for all these applications? Just drawing it up becomes a major engineering job for oil experts.

That was the size of it, when Gulf engineers were asked to draw up lubrication recommendations for the two big machines at the new Eden Mill of the Whippany Paper Board Company, Inc., in Whippany, New Jersey.

Gulf engineers tackled the job two years before the mill opened. They consulted with the designers and builders of the new machines. They surveyed and analyzed the lubrication specifications of each piece of equipment. A major problem was to keep the number of lubricant types to a minimum, consistent with best lubricating practices.

Result? The entire operation—including 397 individual lubricating applications—is now served by only 13

Clean, filtered Gulf Harmony Oil circulates through this Beloit central lubricating system—to all dryer, calender and reel bearings on the cylinder board machine at Eden Mill. At left, is Harry J. De Soi, General Superintendent of the mill, with Gulf Sales Engineer James P. Maher, Jr.

Largest of its kind in the world. This is the new cylinder board machine at Whippany's new Eden Mill. In its central lubricating system are 2100 gallons of Gulf Harmony Oil.

13 Gulf lubricants—more proof that

RUN BETTER!

Gulf lubricants: 6 general plant oils, 2 general plant greases, 5 lubricants for special applications.

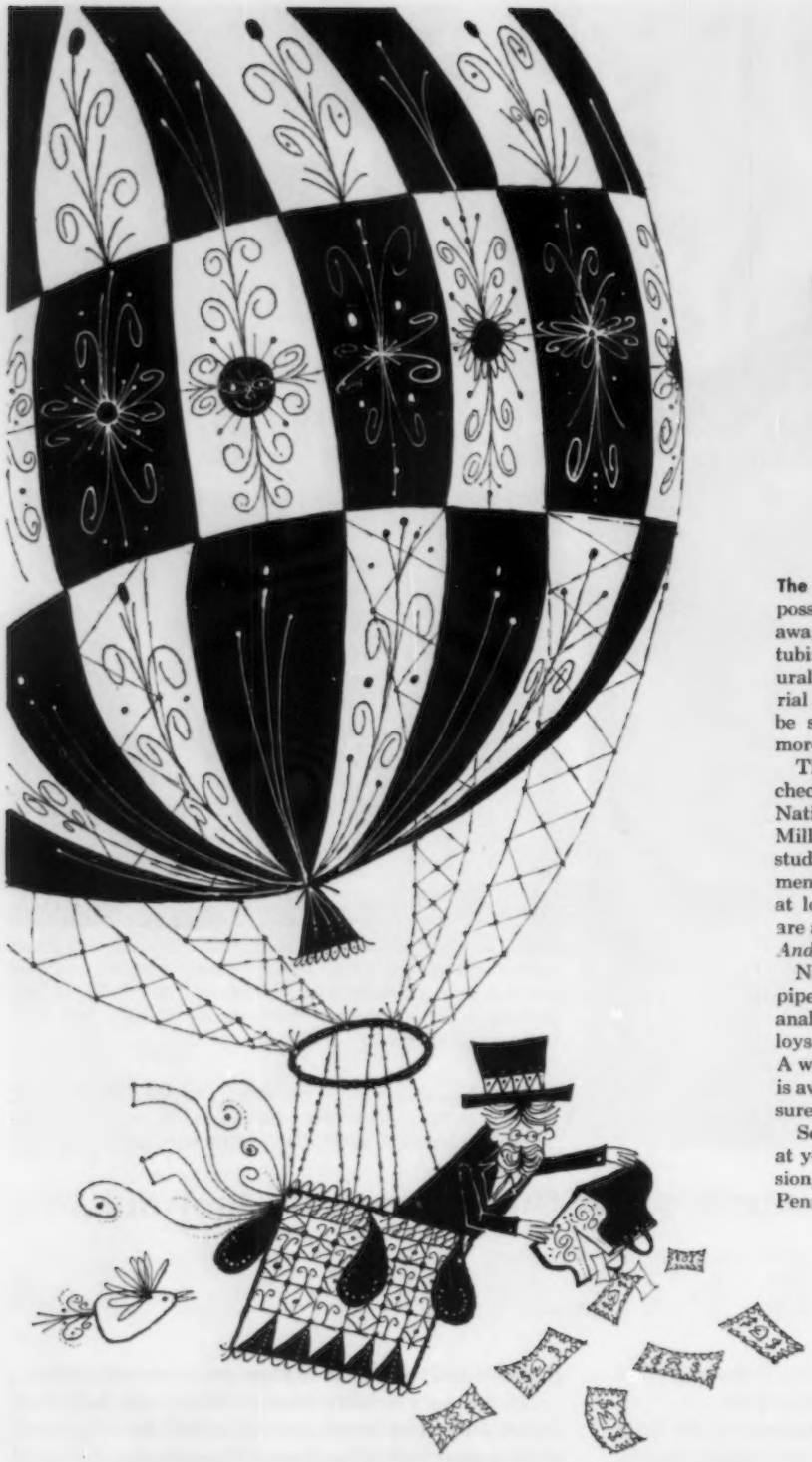
Gilbert N. Miner, Supervising Engineer of the Eden Mill, says, "We consider it a major lubricating achievement to have reduced the number of oils and greases in our complex operation to eight main types and five specials. I know that it is saving us considerable work on the two mills."

Whippany chose Gulf Harmony Oil 76 for the mill's central lubricating system. This outstanding oil withstands severe conditions of heat and moisture, and protects against sludge formation, rust and lacquer.

Do you have a lubrication problem? See how Gulf makes things run better. Just call a Gulf Sales Engineer at the nearest Gulf office. Meanwhile, write for illustrated bulletin on Gulf Harmony Oil.

GULF OIL CORPORATION
Dept. DM, Gulf Building
Pittsburgh 30, Pa.

GULF



Who likes to throw away money?

The answer's pretty obvious. Yet there's a possibility that *you* could be throwing away money when you select pipe and tubing for paper mill applications. Naturally, you want to specify the best material for the job. But, in so doing, you might be spending money unnecessarily for a more costly tubing than you need.

The best way to avoid this is to double-check your choice of materials with National Tube. Our technically trained Mill Service Force will make a careful study of your requirements, then recommend the tubing that will do the best job at lowest cost to you. These technicians are available for consultations in the field. *And,* their help won't cost you a cent.

National Tube manufactures seamless pipe and tubes in a complete range of steel analyses from low carbon through the alloys up to and including stainless steels. A wide range of sizes and wall thicknesses is available for every mechanical and pressure purpose.

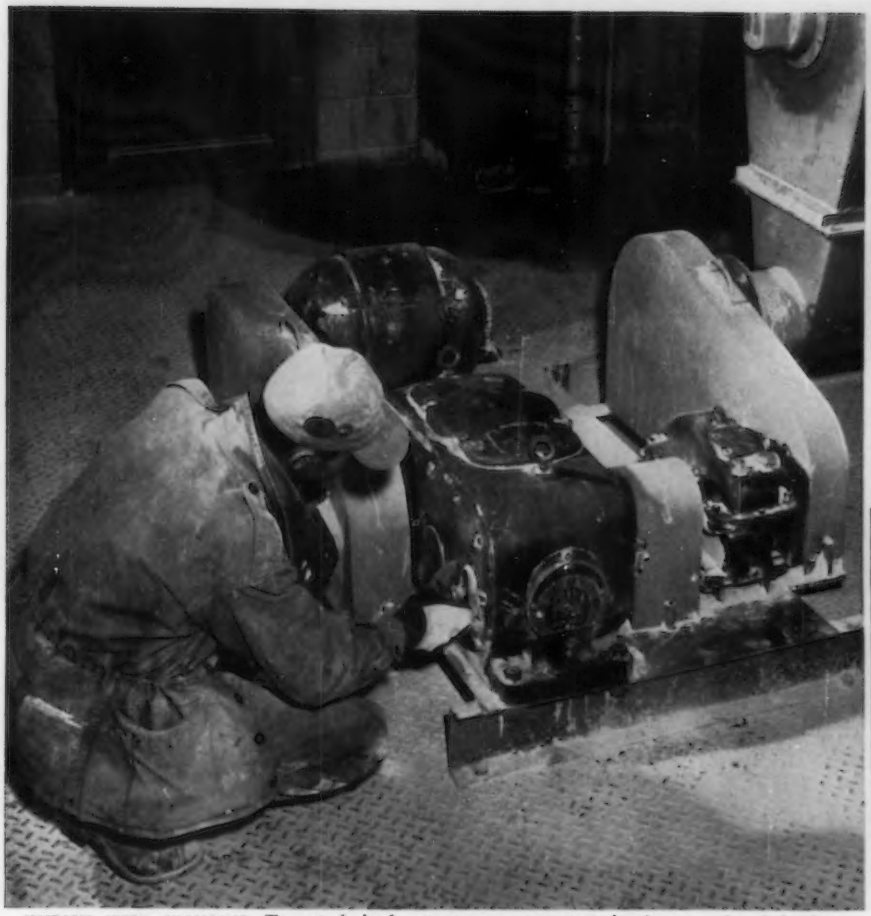
Service is our business. Let us serve *you* at your convenience. National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

USS and National are trademarks

"The world's largest and most experienced manufacturer of tubular products—National Tube"

National Tube Division of USS United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors · United States Steel Supply Division · United States Steel Export Company, New York



INSTANT SPEED CHANGING. To get desired output rpm, operator simply turns handwheel to desired position on easy-to-read dial. P.I.V. responds instantly, accurately. Drives are also available with automatic, electric, pneumatic or hydraulic controls.

SELF TOOTH-FORMING CHAIN consists of a series of steel laminations, serving as teeth, which are free to move from side to side, either singly or collectively.

RADIALLY GROOVED WHEELS have teeth cut at constant depth but of increasing width toward wheel periphery. Beveled sides of teeth provide gripping surfaces for chain.

Slipless transmission - - stepless selection

That's because LINK-BELT P.I.V. uses self-tooth-forming chain

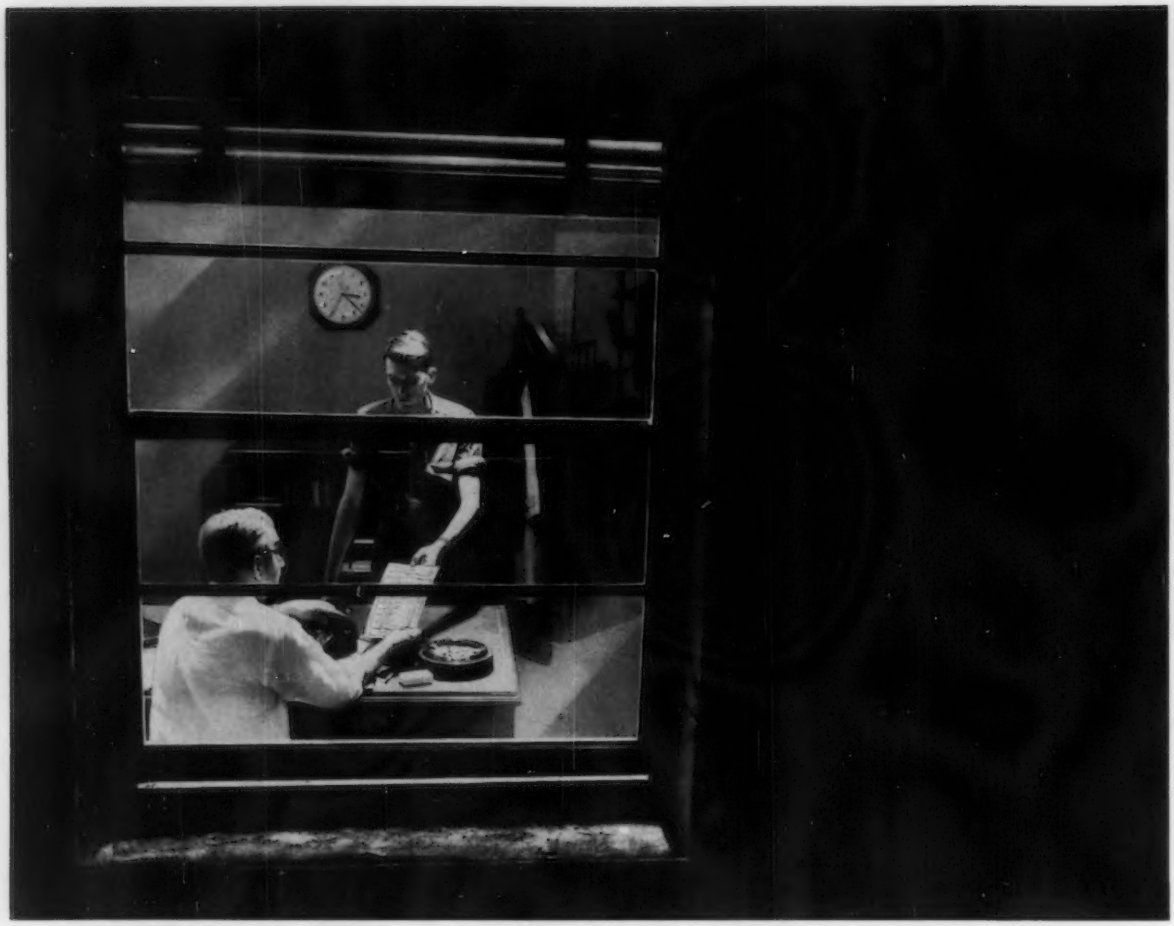
LINK-BELT P.I.V.—unlike other variable speed drives—incorporates an exclusive metal, self-tooth-forming chain to give you instant, positive speed variation, regardless of load. This unique drive permits infinitely variable speed changes without loss of accuracy or interruption of operations. That's why P.I.V. is all industry's choice for jobs requiring stepless, slipless power transmission.

Changing speed is simple too. A turn of the control screw simultaneously varies the effective diameters of two sets of conically shaped wheels—closing one set, spreading the other. At the same time, the self tooth-forming chain automatically adjusts to provide desired ratio between the input and output shafts.

Link-Belt P.I.V. drives are fully enclosed for trouble-free operation. They're splash-lubricated for long life—unaffected by atmospheric conditions. Choose from 8 sizes in 16 standard types, with the aid of Book 2274. Call your nearby Link-Belt office or authorized stock-carrying distributor for complete information. 14,314

LINK-BELT P.I.V. VARIABLE SPEED DRIVE

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville (Sydney), N.S.W.; South Africa, Springs. Representatives Throughout the World.



"Sandy Hill can fix it . . . here's their home phone card"

When a real mechanical problem comes up, the first thought in many mills is to get Sandy Hill on the phone right away.

Sandy Hill has a 100-year record of keeping its customers' machines and equipment operating with a minimum of interruption. This is accomplished in two ways:

1. Every Sandy Hill customer has a special directory (if you don't have yours, write for one) containing the *home* phone number (as well as the business phone) of 29 key men who are available at any hour of the day or night. Any one of these key men will help the customer handle an emergency — and stay with it until it's licked.
2. At the Sandy Hill plant, emergency jobs (as well as small orders in general) are processed immediately by a separate, independent department.

Write or phone for full information on any phase of Sandy Hill *service* to the pulp and paper industry. You'll agree . . . 100 years of experience makes a big difference!

THE
SANDY HILL
IRON AND BRASS WORKS
HUDSON FALLS, N. Y.

The time for whiter, more opaque coatings ...is now!

UNITANE® *Rutile Titanium Dioxides are bringing coating performance up to date.*

For many years

. . . UNITANE O-110 has been highly effective in paper coatings to provide high opacity and whiteness. It is still the preferred titanium dioxide in casein-based systems.

Currently, for even greater opacity

. . . UNITANE OR-540 *rutile* titanium dioxide is finding wider application in publication stock and allied papers. As paper basis weights decrease, the unexcelled opacifying properties of this rutile type become even more valuable as a practical, economical answer to paper-mill quality problems. In the newer latex and emulsion systems, UNITANE OR-540 is giving particularly excellent performance.

Any time you need whiter coatings

. . . you can enjoy the benefit of choosing from a wide range of UNITANE anatase or rutile titanium dioxide types. Samples for evaluation are always available from your Cyanamid Pigments representative – along with recommendations stemming from the work of Cyanamid's Paper Chemicals technical group.

CYANAMID

AMERICAN CYANAMID COMPANY
Pigments Division
30 Rockefeller Plaza, New York 20, N. Y.

Branch Offices and Warehouses
in Principal Cities

Here is must reading for profit-minded paper mills

Your quality—and profit—will start here with this new improved Manchester Suction Main Press.

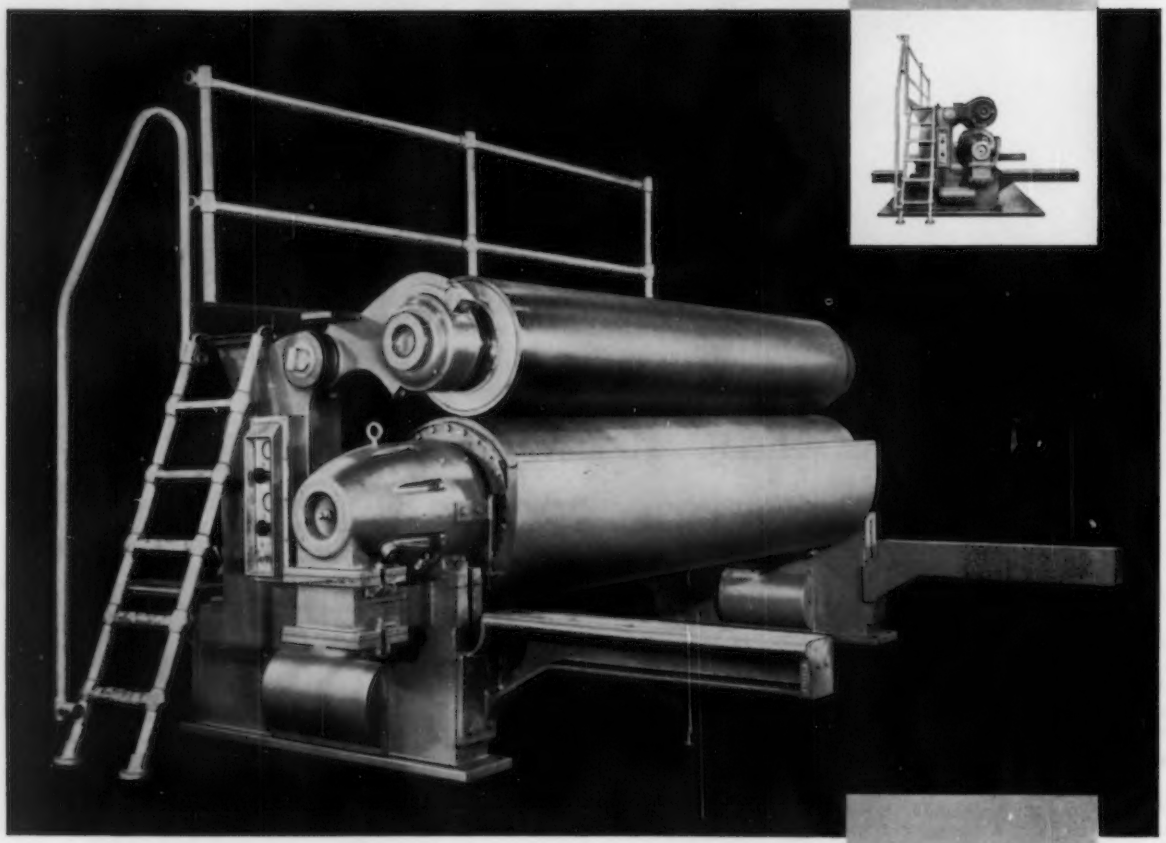
Take a close look at the picture. Note the simple, compact, rugged design of this press. With it, you get more complete water removal, better moisture control, less broke, a higher drying rate, cleaner felts, and longer felt life. The end-result is a more uniform top-quality sheet, steady profit, and a strong competitive position.

The Manchester Main Suction Press is engineered as a complete unit, ready to place in your present machine without costly changes or lengthy shutdown.

Get all the facts. Write us today.

OTHER PRODUCTS

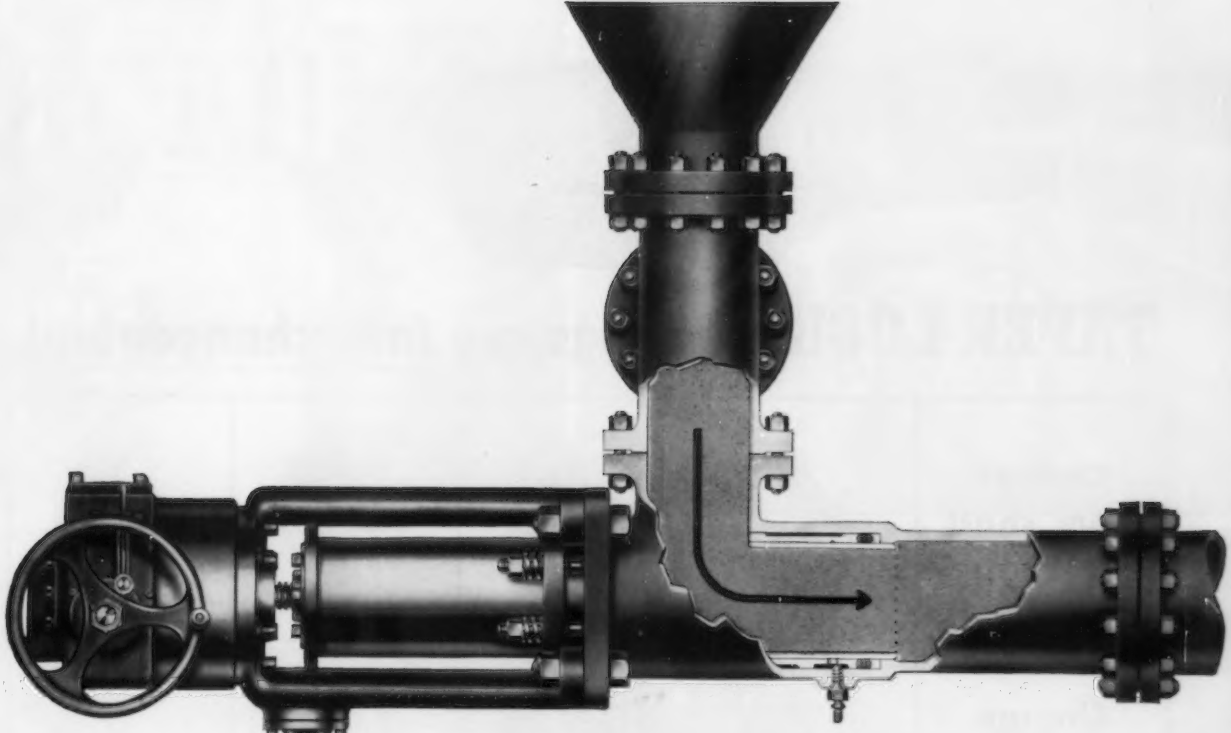
- Primary Presses
- Size Presses
- Pope Type Reels
- Paper Machine Drives
- Rubber-Covered Drilled Suction Press Rolls
- Drilled Suction Drum Rolls
- Drilled Suction Couch Rolls
- Cylinder Molds
- Smoothing Presses
- Winders and Slitters
- Complete Fourdriniers



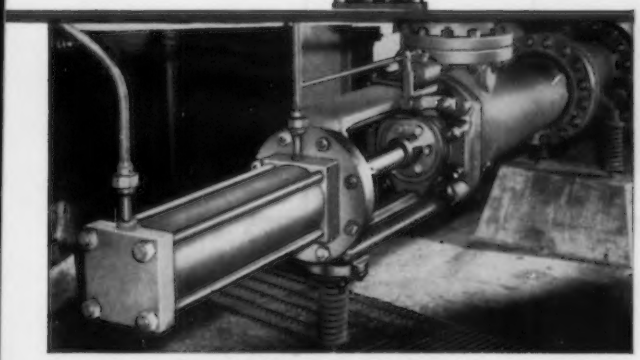
Manchester Suction Press

The Manchester Machine Co., Middletown, Ohio

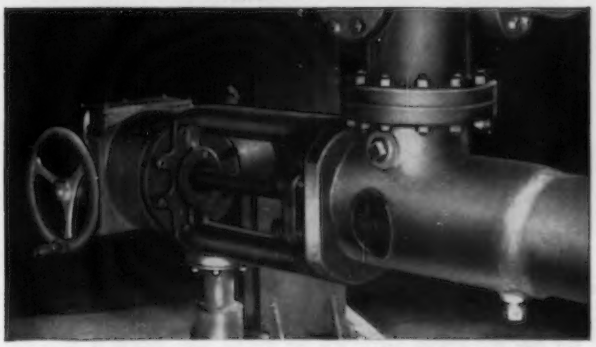
SPECIALISTS IN DESIGNING AND BUILDING PAPER MILL MACHINERY



full, free digester discharge



HYDRAULIC-OPERATED Yarway Digester Blow Valve—one of six installed at large North Carolina paper mill.



MOTOR-OPERATED Yarway Digester Blow Valve—one of eight installed at large Canadian paper mill.

Digesters blow fast and clean with YARWAY Seatless Blow Valves.

The hollow sliding plunger has no pockets where wood chips or tramp materials can hang up.

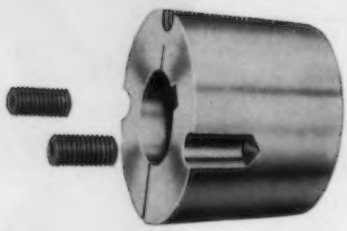
All Yarway Digester Valves have full pipe area, permitting fast discharge with minimum pressure drop. Comparisons show greater discharge area—reducing blowing time, increasing number of cooks.

Scores of pulp mills report *lower operating costs* and *increased production* due to YARWAY Digester Blow Valves. One large mill found *savings in operation and maintenance the first year more than paid the cost of their 4 new Digester Valves!*

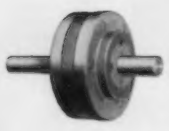
YARWAY Seatless Digester Valves can be furnished either with electric motor or hydraulic cylinder units. Both are remote controlled. Bulletin B-441 gives the whole story. Write for it.

YARNALL-WARING COMPANY
158 Mermaid Avenue, Philadelphia 19, Pa.
BRANCH OFFICES IN PRINCIPAL CITIES

YARWAY · · · · DIGESTER BLOW VALVES



TAPER-LOCK Bushings are *Interchangeable!*

Change from shaft to shaft				
Change from size to size				
Change from sheaves to sprockets to couplings to conveyor pulleys				

Save Time!

There's nothing like Taper-Lock for mounting wheels on shafts! First, you get off-the-shelf convenience. No reboring, no machining, no waiting!

Save Work!

You get the holding power of a shrunk-on fit with minimum effort. Product and bushing slip on the shaft as a unit. Tighten the screws—and you're set!

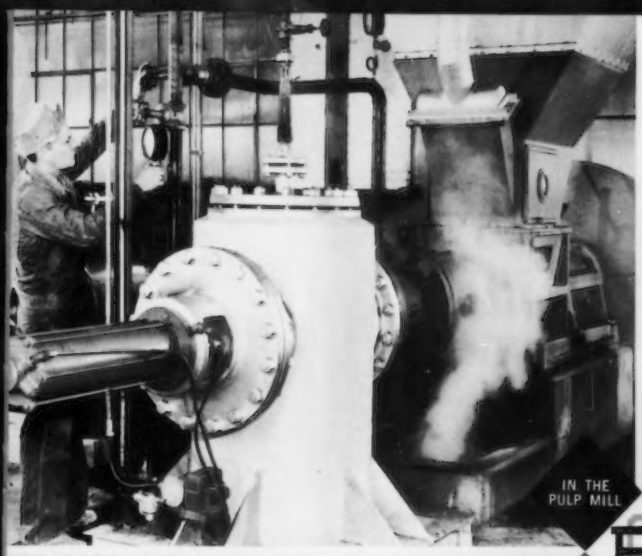
Save Money!

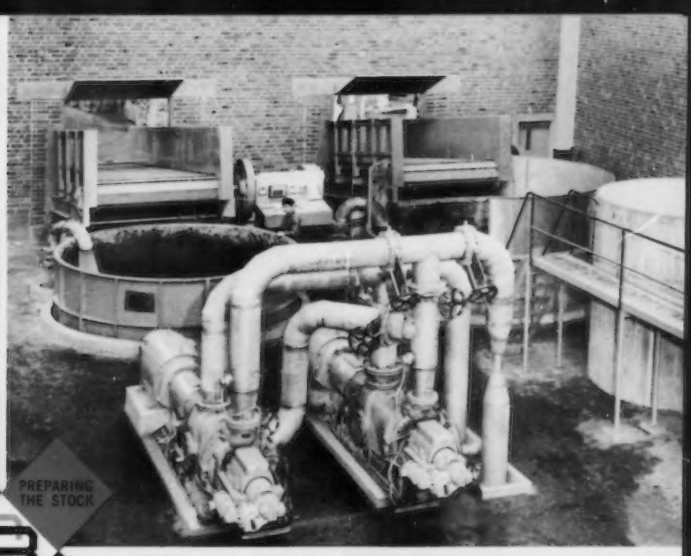
You save big money by minimizing down-time with *quick* changes. And interchangeability minimizes inventory. Note that all of the above installations are handled with a total of only four bushings—all with the same outside diameter!

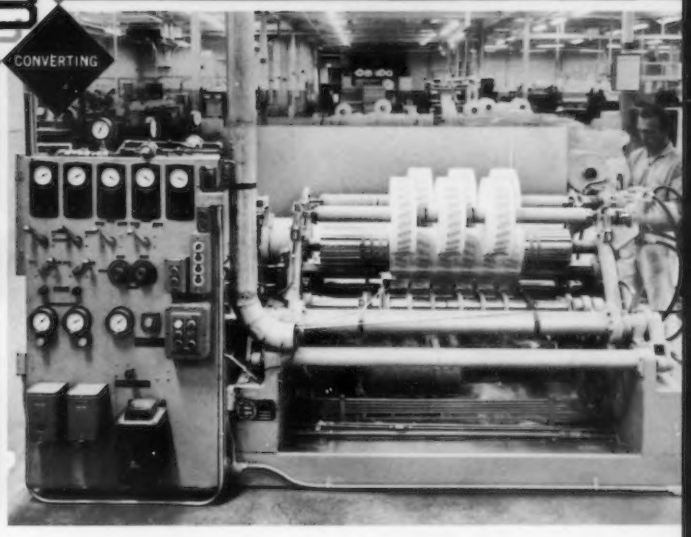
DODGE MANUFACTURING CORPORATION, 2900 Union St., Mishawaka, Ind.

DODGE
of Mishawaka, Ind.

CALL THE TRANSMISSIONEER—your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look in the *white* pages of your telephone directory for "Dodge Transmissioneer".







In Every Paper-Making Process . . . BLACK-CLAWSON is There

. . . giving engineering assistance at every point

Through its four specialized manufacturing divisions, Black-Clawson provides sound engineering assistance at every point in the paper-making process, from the pulp mill to the converting line.

Only a multi-division organization, with the largest, most talented group of paper mill machinery engineers in the world, can offer complete service, work with a mill or converter on any engineering problem that may come up, on any grade from tisssue to board.

Black-Clawson coordinated engineering has served the pulp and paper industry for over 100 years and will help fashion the paper products of the future.

PANDIA DIVISION PULP MILL EQUIPMENT

SHARTLE DIVISION STOCK PREPARATION EQUIPMENT

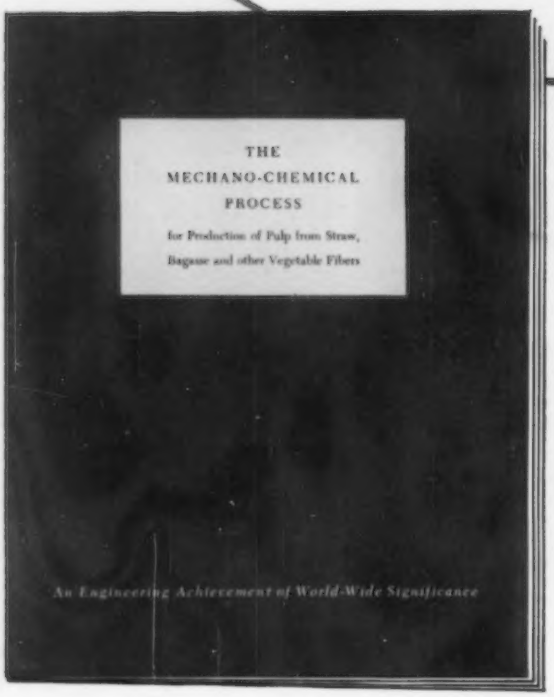
PAPER MACHINE DIVISION PAPER & BOARD MACHINES

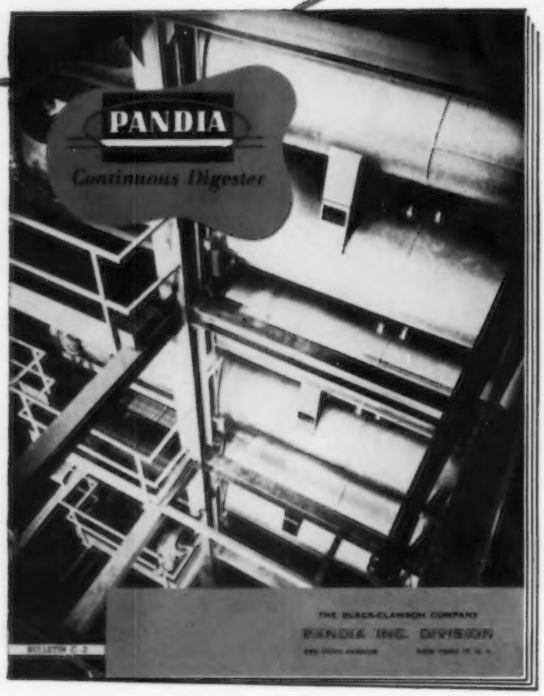
DILTS DIVISION CONVERTING MACHINERY

THE BLACK-CLAWSON COMPANY

Executive Offices: 250 Park Ave., New York, N. Y.
Plants: Middletown, Ohio, Hamilton, Ohio, Watertown, N.Y., Fulton, N.Y.
Black-Clawson (Canada) Ltd., Montreal, P.Q.
Black-Clawson International Ltd., London, England

Which pulping process best fits your needs?





The answer hinges on the raw material to be pulped, the type and quantity of the finished product you intend to manufacture, and many other complex factors.

These two booklets explore the respective merits of two new processes: *The Mechano-Chemical Process for Production of Pulp from Straw, Bagasse and Other Vegetable Fibers,* describes the Hydrapulper Digestion Method and contains 7 samples of papers made by this process. *The Pandia Continuous Digester* explains the new technique of continuous cooking.

We furnish equipment for these two excellent pulping methods—*or for any other process which meets your requirements.*

In these helpful booklets you will find clear-cut facts on which to base your choice of pulping methods. Send for your free copies today.

THE PARSONS & WHITTEMORE / LYDDON ORGANIZATION

World Leaders in the Development of Pulp Mills for the Use of Local Fibers

250 Park Ave., New York 17, N. Y. **18/19 Savile Row, London W. 1., England**

SPROUT-WALDRON Pointers

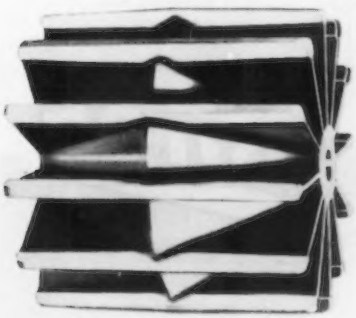
Refiners • Digesters • Conveyors • Feeders
Screens • Drainers • Pelleters • Presses • Stock Proportioners

Published in the interest of better processing by Sprout, Waldron & Co., Inc., Muncy, Penna.

Stretch Your Conveyor Dollars With Sprout-Waldron Belt Saver® Pulleys

With maintenance costs at an all time high it is worth taking a careful look at the famous Sprout-Waldron Belt Saver® Pulley which has proven its ability to increase conveyor belt life from 50-400%. These cast iron wing and cone quality pulleys prevent crushing of the material between the face of the pulley and the bottom side of the belt. Sharp lumps and abrasive materials slide away from the pulley adding years of service life to the belt. Whether you are handling crushed stone, sand, asbestos, soda, limestone, cupola slag, salt, fertilizer, concrete, gravel or any other abrasive or difficult to handle material, Sprout-Waldron Belt Saver Pulleys can extend the life of your conveyor belts or bucket elevators and minimize your shutdown and maintenance costs.

Ask for your copy of Bulletin 35-D.



Sprout-Waldron Belt-Saver® pulley increases conveyor life and cuts operating costs.

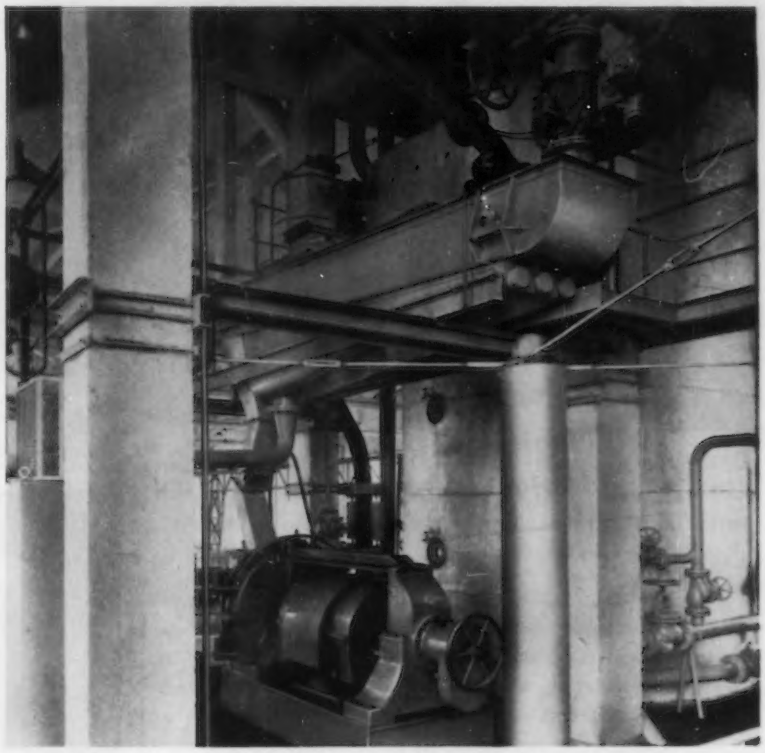


Photo shows Sprout-Waldron Rotary Valve, Flatbed Drainer and 36-2 Refiner in Italy's first semichemical pulp mill.

ITALY'S FIRST SEMI-CHEMICAL MILL

The new SAFFA pulp mill, Italy's first semichemical mill, is producing paper and board using large percentages of bleached semichemical pulp made from local poplar veneer waste. Capacity is set at 30 tons a day of unbleached semichemical or 20 tons a day of single stage bleached dry pulp.

Two mild steel rotary digesters were originally specified. As a result of excessive corrosion, the digesters were lined with stainless steel. This too, has proved unsatisfactory. Metallizing with stainless steel is going to be tried as a possible solution.

After digesting, the chips are pumped to the refiner installation. A 10" x 14" Sprout-Waldron rotary valve meters the chips to a Sprout-Waldron No. 24 drainer and a 300 hp Sprout-Waldron 36-2 refiner. The refined pulp is then screened and pumped to a surge chest and then to a cleaner. Washing after screening is proving unsatisfactory due to loss of black liquor and foaming. Current plans to remedy this include installation of a Sprout-Waldron/Anderson press and refiner system.

For complete details on this SAFFA installation at Magenta, Italy, ask for Bulletin 43.

PP/104

NEW **Jones**

Vacuum Filter

Saves On Floor-Space and Labor

Steps Up Filler Recovery

Eliminates Chemical Additives

Designed primarily as a paper machine save-all, this new Jones continuous rotary vacuum filter rates high in efficiency on a wide variety of white waters, including those containing large amounts of filler materials — without chemical additives.

Completely automatic, its performance remains uniform throughout any normal variations in flow and solids content. In all cases this filter has markedly reduced fiber and filler losses — delivering recovered stock at up to 10%-15% consistency and producing clear filtrate (under 0.5 lbs. solids per 1000 gallons) suitable for showers — or discharge direct to sewers without further filtering.

Low retention volume, large capacity-for-floor-space-occupied, and minimum maintenance requirements are among the many other features. For details, see your Jones representative or write

Stainless steel drum with automatically controlled variable speed drive, is 75% immersed for maximum filtering; six-port distributor simply adjusted by external valves; travelling wire provides efficient removal of recovered stock.

Jones®

Builders of Quality Stock Preparation Machinery

E. D. JONES & SONS COMPANY

Pittsfield, Massachusetts

IN CANADA: The Alexander Fleck, Ltd., Ottawa

Export Agents:
CASTLE & OVERTON, INC., New York 20, N.Y.

Foreign Licensees:
FRANCE Batignolles-Chatillon • ITALY de Bartolomeis
SPAIN Gabilondo • JAPAN Mitsubishi Heavy Industries

Trends

General Economy Upward and Onward

National output continued its upward bound in September. Official third quarter output figures to be released shortly show that every major sector of the economy, excepting non-residential construction, participated in the July-September rise. Administration economists are forecasting that the continuing upsurge in business activity may raise production to a new high during the last quarter of the year. The predicted output rate is 1% above the previous record set in the third quarter of 1957.

Paper and Board Ahead in September

Paper and board mills operated at high rates in September. Rates in terms of percentage of capacity (the figures are penalized for Labor Day although the capacity for that day is completely non-usable because of union contracts) were approximately as follows: Paper mills 87% (Sept. 1957 was 86%) and board mills 91% (same as Sept. 1957). Due to increases in capacity during the intervening year, the tonnage figures for September when available should show a considerable increase.

Set-up Boxes Against the Trend

Set-up box shipments in August were off 11% from a year ago, on the basis of billings, according to the National Paper Box Manufacturers Assn. Orders placed in August were down 20% from August, 1957.

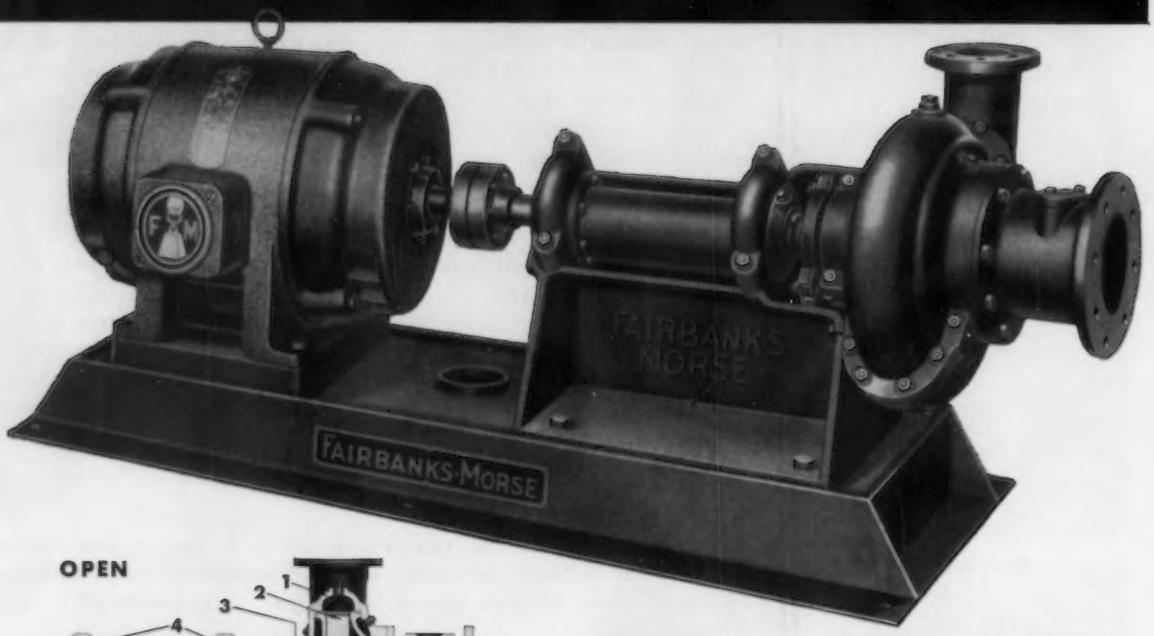
Waste Paper Rise Continues

Further increases were announced for waste papers in the Chicago area on the first of the month. News and corrugated grades were affected. There are rumors of premium prices being paid for mixed, news and corrugated in the New York area.

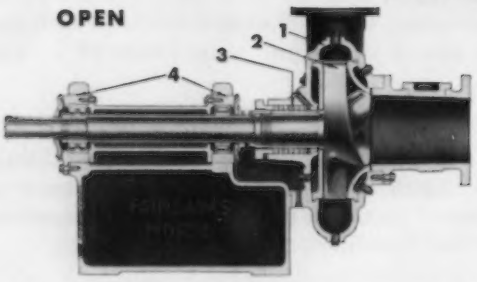
No Trend No Comment

"CARE FOR A COFFEE?"

Protection against down time when moving paper stock

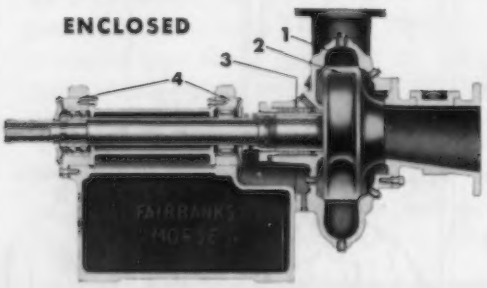


OPEN



No. 5460P Pump has single suction two vane, screw and radial type impeller for high consistency homogenous paper stock.

ENCLOSED



No. 5460 Pump has famous two-vane nonclog impeller for dirty stock containing large solids or long fibrous stocks.

Check these Fairbanks-Morse *pump features!*

From drive end to suction end the Fairbanks-Morse Paper Stock Pump is loaded with extras to assure dependable service and quick, easy service and maintenance.

1. Diagonally split casing and bearing caps for quick removal of rotating element without disturbing piping or exposing bearings.
2. Both open and enclosed impeller are fitted to shaft on a taper and locked with a hub nut. No lock nut obstructs flow at impeller eye and stock cannot contact shaft within pump.
3. Stuffing box provides for introduction of clear sealing water at bottom to prevent material from entering stuffing box.
4. Bearing housings are grease and dust tight—protected against leakage from stuffing box by labyrinth water slinger. Shims between frame and thrust bearing housing flange permit quick easy longitudinal adjustment to compensate for wear.

These are only a few of the oustanding features. For complete information write Fairbanks, Morse & Co., 600 South Michigan Avenue, Chicago 5, Ill.

FAIRBANKS-MORSE

a name worth remembering when you want the BEST

PUMPS • SCALES • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • RAIL CARS • HOME WATER SERVICE EQUIPMENT • MAGNETOS

Flintkote to Acquire Orangeburg Mfg. Co.

Flintkote Co. has arranged to purchase all of the assets and the business of Orangeburg Manufacturing Co. Inc., it was announced jointly by I. J. Harvey Jr., Flintkote chairman and chief executive officer, and H. J. Robertson, Orangeburg president.

Flintkote's newest acquisition, already approved by the boards of both companies but subject to approval of stockholders, calls for the exchange of 132,416 shares of a new class of Flintkote stock to be designated $4.50 Series A Convertible 2nd Preferred with a par value of $100 for the Orangeburg business. The new stock would be convertible into Flintkote common on the basis of $56 per common share, subject to anti-dilution provisions.

Stockholders of the Flintkote Co. will be asked to approve the transaction at a special meeting called for November 25. At that same time the shareowners will also vote on a recently concluded merger agreement between Flintkote and Hankins Container Co.

Orangeburg Manufacturing Co., incorporated in New York in 1893 as The Fibre Conduit Co., produces bituminized fiber sewer and drain pipe and fittings, electric conduits for underground power distribution systems and underfloor duct wiring systems for office buildings, industrial structures and other type construction. The company owns a 255,000-square-foot plant on a 50-acre site at Orangeburg, N. Y., which is also the main office, and leases 85,000-square-foot plant on a 20-acre site at Newark, Calif. The Orangeburg plant includes facilities for the manufacture of polyethylene plastic pipe.

Flintkote's annual sales volume of nearly $120 million would be increased by some $12 million by the Orangeburg acquisition and about another $27 million through the Hankins Container merger. The two moves would increase Flintkote's international manufacturing operations to a total of 63 plants located in the United States, Canada, England and France.

Commenting on the Orangeburg acquisition, Mr. Harvey said the company would be operated as a Flintkote division and its identity maintained. In addition, Mr. Harvey said, "all present employes will be retained and no change is contemplated in the company's management."

Mr. Robertson said "our agreement to operate with The Flintkote Co. as an independent division reflects a continuity of Orangeburg sales policy, management, personnel, and plant facilities."

"The company's growth over its 65-year history," he added, "has called upon the tools of expansion to better service and supply Orangeburg's many customers in the building, plumbing and electrical industries. Flintkote, a leader in its field, brings to Orangeburg the benefit of national located warehouse facilities and an experienced sales force."

Orangeburg Manufacturing Co. reported for the year ended December 29, 1957, net sales of $11,971,973 and net income of $1,029,079, or $2.18 a share on 471,991 shares of common stock outstanding. For its fiscal year ended December 31, 1957, Flintkote reported sales of $116,249,878 and net of $7,049,848, or $3.83 a common share.

Flintkote, which began its current expansion and diversification program in 1956, today is a leading producer of containers, cartons and paperboard, composition floor coverings, industrial lime, adhesives, paving and other industrial products as well as the broadest line of building materials in the U. S.

River Raisin Buys Plant in Lancaster

A 64,500 square foot plant on a 9-acre site in Lancaster, Pa., property of Lehigh, Inc., division of the Lehigh Manufacturing Co., has been sold to the River Raisin Paper Co. of Monroe, Mich. The price was $235,000.

River Raisin operates plants in Cleveland and Sharonville, Ohio, and Eaton Rapids, Mich.

Natl. Paperboard Group Meets in N. Y.

The National Paperboard Assn. will hold its 26th annual meeting at the Waldorf-Astoria Hotel, New York City, on November 11 and 12.

Feature speakers will include George Sokolsky, syndicated columnist, Lloyd Stouffer, editor of *Modern Packaging* who will discuss Trends in Paperboard Packaging and Donald J. Hardenbrook, vice president, Union Bag-Camp Paper Corp., who will talk on the role of business in politics. Malcolm K. Whyte, association counsel, will discuss the recent food additive legislation and Peter Hoguet, president of the Econometric Institute, will forecast paperboard production for the coming year.

President John W. Kennedy will hold a reception for members and guests on the evening of November 11.

SEP 29

PAPER TRADE JOURNAL
49 WEST 45 ST NYC
ATTENTION JOHN C W EVANS

FOR RELEASE WEDNESDAY OCTOBER 1 1958

E. D. JONES & CO. TO BECOME AFFILIATE OF BELOIT IRON WORKS.
HARRY C MOORE, PRESIDENT, BELOIT IRON WORKS AND S HARLEY JONES, PRESIDENT, E. D. JONES & SONS CO HAVE JOINTLY ANNOUNCED THAT AN AGREEMENT HAS BEEN REACHED BETWEEN THE TWO COMPANIES WHEREBY BELOIT WILL ACQUIRE THE ASSETS OF E. D. JONES & SONS CO.
IN MAKING THE ANNOUNCEMENT BOTH HARRY MOORE AND HARLEY JONES STATED THAT E. D. JONES & SONS CO. WILL CONTINUE TO MANUFACTURE ITS SAME PRODUCT LINES UNDER ITS PRESENT MANAGEMENT.

BELOIT IRON WORKS T M JONES

Union Bag-Camp to Buy New Hope Firm

Union Bag-Camp Paper Corp. is negotiating a contract to acquire all of the issued and outstanding stock of Universal Paper Bag Co., New Hope, Pa., in Bucks County.

Italy Gets New Mill

Italy's largest single paper mill, the Cartiera del Timavo, is nearing completion and has already started production.

Situated a few miles from Trieste at the mouth of the Timavo river within the borders of the former Free Territory of Trieste, it is to produce only newsprint and calendered newsprint for illustrated magazines.

The Cartiera del Timavo is stated to be equipped with the largest papermaking machine in Italy and one of the largest in Europe. The machine was imported from Finland. It can turn out 1,900 feet of newsprint a minute. The new paper mill has a capacity of 50,000 tons of newsprint a year, equal to about 25 per cent of Italy's total annual consumption of newsprint.

At the moment the mill is mainly fed with timber imported from Sweden, Finland and Austria. Most of its capital equipment was imported from Finland and Germany. On the technical side it is being operated by a Finnish manager and by four other Finnish technicians.

Paper Made from Leather Fibers

A reconstituted composition leather that closely resembles the more expensive natural material in both characteristics and appearance, but is more uniform and more moisture resistant, has been developed by the Industrial Division of the Armstrong Cork Co.

Called Armotex LN-862, the new material is the latest in Armstrong's series of industrial papers made by a patented modification of the beater saturated process. Developed as a base for imitation leather finishes, it has wide application in the manufacture of luggage, handbags, personal leather goods such as comb and glass cases, notebooks, book coverings and bindings, hat bands and similarly related items.

The new material is made of 100 per cent top grade leather fibers formed on a paper machine and bonded together with a specially developed synthetic rubber. The finished product is smooth, very flexible, highly impervious, strong, and die cuts cleanly. It is available in thicknesses ranging from approximately .021 inch to .100 inch and widths up to 68 inches.

September 22, 1958

Dear Mr. Evans:

We have read with interest Mr. L. L. Klinger's article entitled "What you should know about flotation saveall design and operation" which appears in the September 1st edition of the Paper Trade Journal.

This is an informative and well written article and one which we feel is a true service to the Paper Industry.

However, in the section entitled "Chemical Additive Systems" Mr. Klinger is not entirely correct. We would like to point out the fact that a large number of paper mills who have flotation type savealls are using various grades of animal bone glue for use as a flocculant.

Further, whereas Mr. Klinger indicates that a medium grade animal hide glue is necessary, our experience has shown that the strength of glue required will vary depending upon the particular furnish being treated. Bone glue used by various customers of ours ranges from 85 to 210 grams gel strength.

Also, one of the advantages of bone glue is that it does not have to be aged. This eliminates the need for extra storage capacity.

We would appreciate your printing this correction in any manner you desire, as we are sure you want your readers to have the advantage of all available information.

Very truly yours,
DARLING & COMPANY
J. R. Sandberg
Glue Division Sales Manager

New Plant For Harper-Crawford

The Harper-Crawford Bag Co., Charlotte, N. C., has purchased a new plant location at 1601 N. Brevard St. for $115,000.

The 50,000 square foot warehouse and manufacturing facility was formerly occupied by the Charlotte Bagging Co.

H. V. Lang, president of Harper-Crawford Bag Co., said that the entire operation of the firm will be in the new location in about two months.

Paper and Board Production

According to the American Paper and Pulp Assn., the ratio of the United States production to mill capacity for the week ending September 20, 1958, was 91.2 per cent compared with 91.5 per cent revised for the preceding week. The ratio was 89.9 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending September 20, 1958, was 95 per cent compared with 97 per cent for the preceding week and 96 per cent for the corresponding week last year.

(Detailed statistics on page 28.)

Federal Paper Board Opens Arden Plant

Federal Paper Board Co. Inc. has formally opened its modern folding carton plant in Arden, Pa.

The building is situated on a 37-acre site in South Strabana township. The new plant consolidates the carton operations of Federal Glass Co. and its division, Hercules Box Co. both of Columbus, Ohio.

The plant was designed and constructed under the supervision of the company's engineering department.

Southeast TAPPI to Meet

The next meeting of the Southeastern Section of TAPPI will be held at the Florence Country Club, Florence, S. C. on November 14. On Saturday morning November 15, Sonoco Products Co., Hartsville, S. C., will be open for tour.

The following papers will be presented during the Friday evening technical program: "A Discussion of The New Stretchable Paper," by Charles A. Shoudy of West Virginia Pulp and Paper Co.; "The Use of Glass Fibers in Papermaking," by John A. Waugh of Owens-Corning Fiberglass Corp.; "A Discussion of Some of the Basic Principles of Kraft Pulp Production," by Everett D. Cann of Hudson Pulp and Paper.

Howard Paper Mills Completes Modernization Program

Howard Paper Mills, Inc., Dayton, Ohio, has just completed an important step in the modernization program in its Urbana mill, the Howard Paper Co. Division. This two-machine mill was built in 1910. The modernization program was started shortly after World War II when No. 2 paper machine was completely modernized and the mill's beaters were replaced with pulpers and refiners.

New Fourdrinier

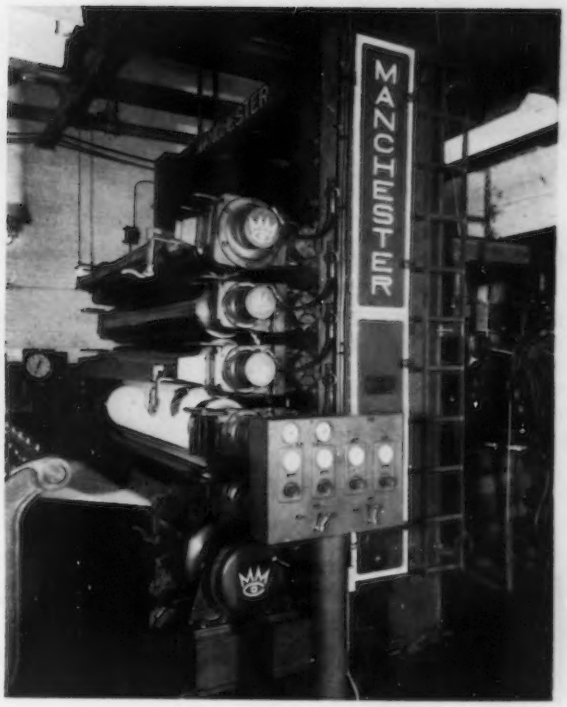
Modernization of No. 1 machine was completed recently. This largest item in the project consisted of installing a new fourdrinier section supplied by Manchester Machine Co. This has increased the machine's wire width by four per cent and the wire length from 65 feet to 75 feet. According to J. H. Tate, vice president in charge of manufacturing and engineering, widening the machine's wet end has resulted in better trim control and has generally increased the mill's ability to produce high quality bond, ledger and similar grades.

The new fourdrinier includes a new breast roll, a completely new shake mechanism and new table rolls. Antifriction bearings were used throughout. All table rolls are rubber covered with steel cores. Corrosion resistant materials were used throughout the fourdrinier.

New Calender and Reel

The modernization of No. 1 machine at Urbana includes the installation of a new six-roll calender stack, also supplied by the Manchester Machine Co. This is an entirely new, open-side construction calender, with anti-friction bearings throughout. The stack is so constructed that the mill can add two additional rolls if this should prove desirable at a later date. The rolls are loaded hydraulically through an air-over-hydraulic system which affords simpler, more sensitive load control. The stack is operated from a separate machine aisle console. One of the unusual aspects of this Manchester Machine stack is a provision which enables the operators to counterbalance the rolls individually.

The current program also included the installation of a Manchester reel. The new reel and its drive were located away from the original reel site to make room for the new calender stack which is considerably larger than the one it replaced. The modernization of this machine also included the installation of a beta gage basis weight control.



New stack was one of the items in modernization of No. 2 machine.

Howard manufactures sulphite bond, ledger, mimeo, writing and duplicator grades in its Urbana mill. These grades are made in a range of 13 to 36 pounds (17 x 22-500). E. W. Petrich, production engineer of Howard Paper Mills, Inc., was in charge of the modernization program in the mill. Mr. Petrich worked closely with Manchester Machine engineers from inception through execution of the machine modernization project. C. M. Shockey is mill manager of the Urbana mill and C. R. Bishop is mill superintendent.

Community Relations Conference set for Texas

The Community Relations Service of the Southwestern Paper and Pulpwood Consuming Industries will hold its fifth annual meeting at the Ridgewood Motor Hotel, in Beaumont, Texas, on November 6 and 7.

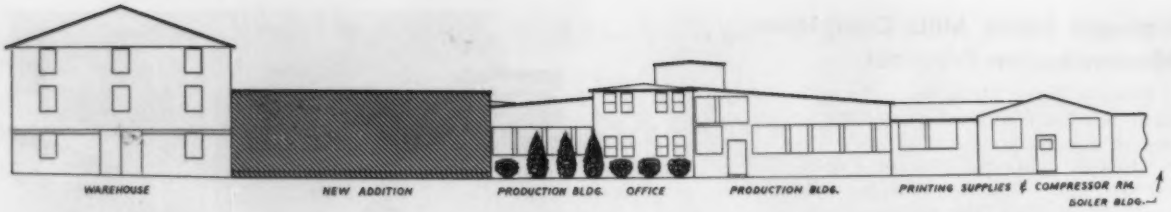
This community relations group is composed of personnel from pulp, paper and pulpwood consuming industries located throughout the states of Texas, Louisiana, Mississippi and Arkansas. This group reports to the A. P. P. A. Community Relations Committee. T. H. Davis, secretary of this committee will be present at the conference.

An outstanding array of speakers has been obtained. Robert Sturgiss, Southwest public relations manager of the Ford Motor Co., Dallas, Texas, will speak on the subject "Maintaining Good Community Relations." Walter G. Beach, supervisor of publications and public information for the Humble Oil and Refining Co., Houston, Texas, will speak on "The Plant Publication as a Community Relations Tool."

During the afternoon on November 6 there will be a panel discussion on the topic "Community Relations in Changing Economic Situations." Moderator for the panel will be R. P. Meredith, personnel director for the Crossett Co. Other panel members will be Howard J. Hicks, executive director of the Beaumont Chamber of Commerce; Dr. R. W. Setzer, dean of the School of Business Administration at Lamar State College of Technology, Beaumont, Texas; W. R. Beaumier, vice president and general manager of Lufkin Publishing Co., Lufkin, Texas; and Max K. Sniffen, staff assistant of the Pure Oil Co., Nederland, Texas.

The banquet speaker will be Dr. R. H. Montgomery, graduate professor of economics at the University of Texas, Austin, Texas. His subject will be "Phaeton Seized the Chariot of Apollo." Gordon Baxter of Radio Station KOGT, Orange, Texas, will give an exhibition (with commentary) on his extensive collection of antique guns.

On November 7 the group will take conducted tours of the East Texas Pulp and Paper Co., at Evadale, Texas, and the Kirby Lumber Co., at Silsbee, Texas.



KVP'S Devon Plant to Add Facilities

Bob Caine, vice president of Manufacturing, has announced that plans for additional warehousing and manufacturing facilities at KVP's Devon, Pa., converting plant have been completed. A construction contract has been let, and when completed will increase the present size of the plant 30 per cent.

One of seven plants of the KVP Co., the Devon plant is located just outside of Philadelphia, Pennsylvania. Expansion of the Devon plant will enable KVP to better service its customers in the East.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Aug. 23	Aug. 30	Sept. 6	Sept. 13	Sept. 20
1958	91.1	88.7	70.1	91.5r	91.2
	Aug. 24	**Aug. 31**	**Sept. 7**	**Sept. 14**	**Sept. 21**
1957	92.2	89.6	71.3	91.5	89.9

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	86.9	89.5	89.5	88.1	86.4‡	86.2‡	76.0‡	89.8‡	—	—	—	—	—
1957	94.2	97.0	97.1	94.0	94.6	93.3	75.6	90.7	86.0	93.0	90.7	81.5	90.9

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	195‹	1952	1953	1954	1955	1956	1957	1958
Year to Date	99.2	90.4	92.1	91.2	94.4	98.2	91.1	85.6
Year Average	98.0	88.6	92.3	91.6	94.0	97.9	90.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Aug. 23	Aug. 30	Sept. 6	Sept. 13	Sept. 20
1958	92	95	73	97	95
	Aug. 24	**Aug. 31**	**Sept. 7**	**Sept. 14**	**Sept. 21**
1957	95	95	72	98	96

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	80	86	88	84	84	86	76	93	—	—	—	—	—
1957	91	94	94	92	93	91	72	94	91	97	92	79	90

† *Percents of operation based on "Inch-Hours" reported on a 6-day basis.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Sept. 20, 1958	LAST WEEK ENDING Sept. 13, 1958	CUMULATIVE TO DATE Jan. 1 to Sept. 20, 1958
% Activity	95%	97%	85%
Total Production	311,174	305,978	9,890,660
Liner	112,668	104,891	3,271,458
Corrugating Material	48,377	47,459	1,487,613
Chip & Filler Board	4,017	5,422	180,399
Total Containerboard	165,062	157,772	4,939,470
Folding	53,725	59,684	1,915,002
Set-Up	11,909	13,239	396,009
Special Food Board	28,145	22,816	932,712
Other	52,333	52,467	1,707,467
Total Boxboard	146,112	148,206	4,951,190
Total Orders			
Received	260,256	310,445	
Unfilled End of Week	446,577	509,651	

Paper Mill Gets Cleaned Up—Unexpectedly!

There's less toil with Lestoil, and Strathmore Paper Co.'s Woronoco mill can prove it! It's so effective that they almost stopped toil entirely at the mill when a tractor trailer dumped an entire load of Lestoil in the mill's water supply. The truck crashed through a railing on the Massachusetts turnpike and rolled down a 250-foot embankment. An undetermined number of the 11,400 bottles of Lestoil which it carried were broken, and a stream of Lestoil flowed into a reservoir which supplies water for the Woronoco No. 1 mill.

As a matter of fact, the Lestoil probably didn't mean less toil for the workers at the mill, either. It probably meant they had to work harder than ever to make a change in grade since the heavy dose of Lestoil that entered the intake pipes and passed through the filters did an effective job of removing scale from the cast iron pipes. The result was discolored, but pine-scented paper which was retained for in-plant use.

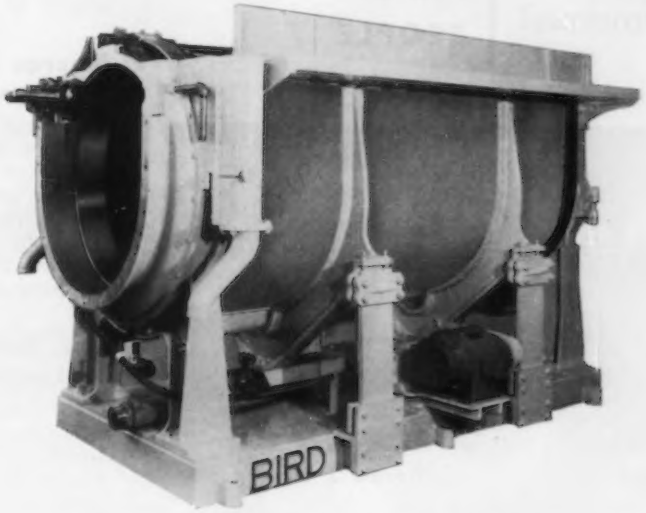
Some difficulty might have been expected with sizing, but it was not affected, according to a company spokesman. He also said that their felts are very, very clean—although he didn't feel the cleaning method should be recommended for future use.

Although production at the mill was interrupted by the accident, an emergency water supply system was soon put in operation, piping water directly from the Westfield River using a system constructed while turnpike work interrupted piping from the reservoir. This enabled manufacture to continue while the reservoir of milky white water was drained and flushed. Within 36 hours, the mill was able to resume drawing water from the reservoir.

The truckload of Lestoil was on the way to a warehouse in Peoria, Ill. when the crash occurred. The truck-driver, incidentally, sustained only cuts and bruises despite the 250-foot plunge.

Change at Douglas Young

Douglas Young, Inc., paper box manufacturers in Pawtucket, R. I., has appointed Mrs. E. Louise Preston general manager. Mrs. Preston has been executive secretary and assistant treasurer since 1933.



THE BIRD SCREEN

BASIC BARRIER TO REJECTS AND SHUTDOWNS

Regardless of how extensive and elaborate prior dirt removal methods may be, producers of quality papers in all grades bank on Bird Screens as the final determining factor of continuous quality output from the paper machine.

Bird Screens deliver the stock uniform in weight, free of lumps, strings and slime. They comb out and individualize the fibres, assuring good formation.

To meet today's exacting standards of paper cleanness — to head off rejects and shutdowns — big, modern Bird Screens belong at the head of your paper machine.

BIRD
MACHINE COMPANY

SOUTH WALPOLE, MASS.
REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND, OREGON • ATLANTA 9, GEORGIA
Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

Thomas McMurray

Harold J. Lausman

Named Vice President of Crystal Tissue

Thomas McMurray, general sales manager of Crystal Tissue Co., Middletown, Ohio, has been appointed vice president in charge of sales.

Mr. McMurray joined the Crystal organization in 1946 as sales statistician and later became a territorial sales representative for the company. He was promoted to assistant sales manager in 1949 and a year later became sales manager of mill products. In March of this year he was made general sales manager.

Appleton Div. Names Asst. Manager

Harold J. Lausman has been appointed assistant manager, Appleton Division of Consolidated Water Power & Paper Co.

Mr. Lausman has been associated with the company since 1939. He served as Appleton Division chemist for five years before moving to Wisconsin Rapids where he became group leader in the pulp development laboratory. He has been pulp and by-products sales representative for the company since 1953.

St. Regis Transfers McDermott To Sartell

John C. McDermott, for the past two and a half years beater room superintendent at the Deferiet, N. Y., mill of the St. Regis Paper Co., has been transferred to the company's Sartell, Minn., plant as tour superintendent.

He will be succeeded by Herbert Mitchell, who has been working on various phases of production operations at the Deferiet mill.

Mostyn Appointed Pabco District Manager

G. V. Mostyn has been appointed Rocky Mountain district manager for the Pabco Building Materials Division of Fibreboard Paper Products Corp., San Francisco. His headquarters will be at 2525 S. Delaware St., Denver. Mr. Mostyn recently has been building materials sales representative of the divisions in Hawaii.

Siegel Succeeds Barthen at Gardner Container

Gardner Container Co., Akron, Ohio, has announced that Melvin E. Barthen had terminated his services as president. Gardner Container, manufacturer of corrugated boxes, is a wholly-owned subsidiary of Diamond Gardner Corp.

Richard L. Siegel has been named president of Gardner Container to succeed Mr. Barthen. Mr. Siegel will also continue to serve in his present capacity as general manager of the Gardner Division of Diamond Gardner Corp. in Middletown, Ohio.

It was further announced that the Hoosier Containers, Inc., of New Castle, Ind., had accepted a contract to manage the Dayton and Akron plants of Gardner Container.

Sales activities of Gardner Container and Hoosier Containers will be under the direction of Norris Downing.

William Friend has been promoted to technical supervisor at the Lockland board mill of the Gardner Division of Gardner Board & Carton Co. Stanley Trosset, Evendale, a Gardner supervisor, was appointed to assist the director of research and development.

Macrae Named St. Regis Director

St. Regis Paper Co. (Canada) Ltd. announces the election to the board of directors of L. R. Macrae, vice president of Canadian operations, with headquarters in Montreal. Mr. Macrae joined the company in 1945 after a long association with the Canadian pulp and paper industry.

L. J. Knippa Moves To Lockland

L. J. Knippa has been appointed plant manager of the Philip Carey Manufacturing Co. in Lockland. He was formerly plant manager of the company's Houston, Tex., plant.

Bemis Reappoints Cullinane

John R. Cullinane, resident manager of the paper specialty plant of the Bemis Bro. Bag Co., in Crossett, Ark., has been appointed sales manager for all paper specialty plants with headquarters in St. Louis. Succeeding Mr. Cullinane is J. S. Heard, former resident manager of the Albion, N. Y., paper specialty plant.

Austin F. Anthis

Champion Appoints Project Engineer

Champion Paper and Fibre Co. has appointed Austin F. Anthis to the position of project engineer in the firm's research and development division in Hamilton, Ohio. He has been senior technologist at Champion's Texas division, Pasadena, Texas, since 1955.

Plan to stay ahead... MODERNIZE!

ALLIS-CHALMERS

After a year's operation in the same kiln, note the difference between the original *Thermopruf* chain (A) and conventional proof coil chain (B). New, improved *Thermopruf* chain is shown at right (C).

C

Improved *Thermopruf* chain assures extra economy in lime recovery

Allis-Chalmers offers sulphate plant operators another opportunity to reduce the cost of lime recovery. The patented *Thermopruf* chain has one-third more heat transfer surface, withstands 40 percent higher temperatures, has superior resistance to corrosion and far greater life than conventional chain. In addition, a unique split-link feature permits easy installation and maintenance.

Real Cost-Cutting Combination

The Allis-Chalmers lime sludge kiln and *Thermopruf* chain system can recover lime at much less than the cost of new lime. Fifty sulphate plant operations using A-C equipment are proving it. Call your A-C man for details, or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wis.

ALLIS-CHALMERS A-C ALLIS CHALMERS

A-5852

DOW CHEMICALS... experience makes them better

When a new product is introduced successfully to industry, the research chemist is pleased at its initial success. But he knows there is still a world of data to be gained from his customers' experience with the product *at work* . . . new facts and factors that will enable it to be tailored more closely to the user's needs. These advertisements are a part of the continuous "conversation" that goes on between Dow and users of chemicals in the paper industry that makes many a good product even better.

You may wish to check certain items in this advertisement and forward to those concerned in your own company.

ROUTE TO:

_____

_____

_____

_____

FLOCCULANT SCORES HIGH IN FILLER RETENTION

When a talented polymer like Separan® NP10 appears . . . one that does many things well . . . it's a temptation to talk about all of them. But of most interest to pulp and paper men is the exceptional boost this new polymer gives to filler retention. Here Separan NP10 has scored heavily in increasing retention of such common fillers as clay and titanium dioxide in the sheet.

Impressive dollar savings were scored by Separan NP10 with several types of sheet. Here are savings of dollars-per-ton, calculated by subtracting the cost of the Separan NP10 used from the value of the filler saved:

55 lb. envelope stock	$ 4.30 per ton
30 lb. magazine stock	$ 4.10 per ton
60 lb. offset bond	$ 2.50 per ton
25 lb. machine-coated carton wrap	$ 5.50 per ton
50 lb. offset bond	$15.15 per ton

Opacity Imperative. An important specification of mills making envelope stock is OPACITY. As you know, the paper mill that wants to stay competitive has to meet it . . . *or else*. One paper maker, to achieve this "must" in his envelope stock, was using abnormally large tonnages of filler clay. And no wonder! . . . his envelope stock was *holding* only 34% of the clay. Then his Dow representative suggested the use of Separan NP10.

This is what happened: At the start of the test a solution of Separan NP10 was added to the machine at the rate of 0.8 pounds per ton of envelope stock. In a short time clay retention started to climb and continued high throughout the test. A check-up a week later showed that clay retention was up from 34% to 71%. And so a cutback was made in the beater clay addition, from 550 pounds to 330 pounds per ton.

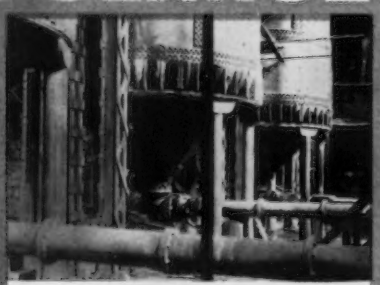
A clear gain in opacity was registered, too. The envelope stock showed an opacity increase from 86.6 to 90.3 percent. An additional 80 pounds of clay per ton of paper was being retained in the sheet. Naturally, the additional clay in the sheet was cheaper than the bleached short-fibre pulp it replaced! Direct savings were 220 lbs. of clay per ton of paper.

Now, a family of Separan flocculants. Originally Separan made its debut as Separan 2610. This new and improved version of the same, called

A QUICK GLANCE

DOWICIDE

Protect lap stock and coatings against mold growth the *right* way with Dowicide® preservatives. Write on your letterhead for technical bulletin.

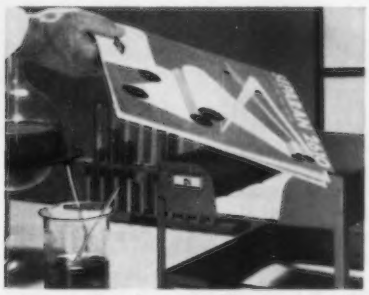


CAUSTIC SODA

Four producing plants and eight shipping terminals put Dow caustic where you want it, when you want it. Excellent quality always is a Dow tradition.

Effect of polyacrylamide-type flocculant shows clearly in these pictures taken of save-all units for paper machines on which Separan was used (left) and was not used (right). Note the much heavier solids removal from latter unit, indicating poorer filler retention on the paper machine.

Separan NP10, is easier than ever to use. Purity and uniformity have been improved, dispersibility substantially increased. And Separan NP10 is now on stream in quantities sufficient to supply mills anywhere. Separan NP20, the newest member of the family, has an even higher flocculating power and deserves your evaluation. Although more expensive, its higher activity may make it more economical to use in your applications.



A new brochure on "Separan in the Pulp and Paper Industry" is now available. Write us, on your company letterhead, for your copy.

DOWTHERM:

puts more "jack" in the box

Cardboard container manufacturers looking for a new way to make more boxes for less may find the answer in Dowtherm®. This organic heat-transfer medium is well known for its thrifty efficiency in many industries, but pulp and paper people have only begun to take advantage of its unique characteristics.

Higher production rates. Dowtherm supplies heat at uniformly high temperatures without the accompanying high pressures necessary with steam. It can be used to heat rolls used for corrugating cardboard stocks to higher temperatures without "beefing up" the equipment to accommodate higher pressures. In this way, units can be produced faster, keeping production costs down where they belong. Dowtherm also offers advantages for similar applications such as for asphalt laminated bags. Dow offers information on Dowtherm that should interest any manager of a plant where the heat's on.

NEW METHOCEL:

saves 'round the calender

Methocel® 90HG points the way to a host of benefits not possible with other methylcellulose formulations or natural gums. For example, it doesn't gel at the temperature of rolls in the calender stack. As a result, paper or board is more evenly coated and the operation is much easier to control. This news should interest manufacturers of fibre packs and laminated asphalt paper.

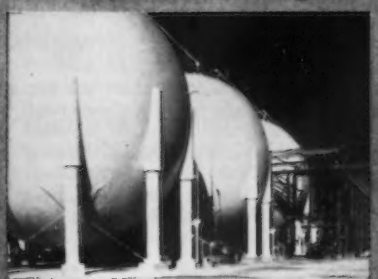
Better printing. The use of Methocel in coating these and other pulp and paper products gives a better surface for printing. As Methocel is non-ionic and sodium free, there is no reaction between coating and ink. And it is resistant to organic solvents used in inks and grease as well. Methocel improves mullen burst strength and the coating properties of most films. Once applied, it does not become plastic in the presence of high temperatures, so hot materials can be packaged in containers coated with Methocel without threat of contamination.

A new 60-page book gives the facts and figures about Methocel. Included are descriptions of the new Methocel products and new viscosities, information about solution preparation, slurries, temperature effects and properties in coatings and in films. An exhaustive bibliography serves as excellent reference for the pulp and paper chemist.

★ ★ ★ ★

IF THESE NEWS NOTES about pulp and paper chemicals are helpful we'd like to have your comments. For more information about any Dow chemical discussed in this advertisement, write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Sales Department 769L.

at other profit-building Dow chemicals



AMMONIA

Cost savings with ammonia base cooking now more attractive than ever before . . . Dow assures abundant supplies for future needs of the pulp and paper industry.

POLYOLS

Whatever your requirements for plasticizers or lubricants, try the wide line of Dow polyols first. New folder lists and describes them briefly.

Dow chemicals basic to the pulp and paper industry

Chemical Raw Materials • Pulping and Bleaching Chemicals • Preservatives Plasticizers • Glycols and Derivatives • Methylcellulose Emulsifiers • Solvents Aromatics • Caustic Soda Hydrochloric Acid • Chlorine Soda Ash

YOU CAN DEPEND ON

DOW

Piccolyte Resins

Emphasizes physical and chemical properties and features charts covering compatability, solubility and viscosity of these resins. Also includes a chart giving the range of applications for various grades. Bulletin. Pennsylvania Industrial Chemical Corp., Clairton, Pa.

Quicksan-C Biocide Series

Tells why their fungicidal and bacterial activity are claimed to be better than that of phenyl mercuric compounds. Stecker Chemicals, Inc., 45 N. Broad St., Ridgewood, N. J.

S&K Atomizing Nozzles

Provides information on sizes, dimensions, capacities and materials of construction. These nozzles are capable of spraying liquids in quantities up to about 3 g.p.m. Dept. JA-14, Schutte & Koerting Co., Cornwells Heights, Pa.

Apex Designs and Controls for Krebs Cyclones

Covers proper apex discharges relating to classification efficiency in both open and closed circuit applications. Also includes Apex capacity chart and cut-away drawings. Bulletin 1400. Equipment Engineers Inc., 41 Sutter St., San Francisco, Calif.

Board Plants by Dorr-Oliver

Describes the design and engineering service they offer to board producers and the wood products industries. Also provides flow sheets of typical designed board plants and a tabulation of potential markets for various types of boards. Bulletin 8002. Dorr-Oliver Inc., Stamford, Conn.

Dyes and Chemicals

Includes chapters on Du Pont paper white BP in the paper industry; new dyes—"Pontamine" Yellow S9G; notes on the production of non-twosided colored papers; recommended quantities of common salt for retention of direct dyes; "Zoron" WS Resin Finish—synthetic resin for paper uses; "Avitex" ML softener and paper conditioner; beater and surface application of Du Pont "Naphthanil" dyes; maximum retention of selected Du Pont dyes on various pulps; laboratory notes on Du Pont retarder LAN—minimizing graniting; "Alkanol" HCS surface active agent in continous felt washing; "Avitex" ML softener —foaming tendencies; blue wrapping paper for sterilized cotton; mottled conditions—old news base; stripping of rags—blue and khaki shades; paper index—dyes and chemicals technical bulletin and color coating container board. Technical Bulletin. Volume 1, No. 1. E. I. Du Pont De Nemours & Co., Wilmington 98, Del.

Fuller Equipment for the Process Industries

Discusses applications and performance characteristics of their equipment. Also explains operating principles and provides photographs of typical installations. Bulletin G-3B. Fuller Co., Catasauqua, Pa.

Static Can Be Fun!

Provides illustrated sales copy on Simco "Midgets" which have no radiation or health hazards. Simco Co., 920 Walnut St., Lansdale, Pa.

Statistical Studies of Rosin Sizing Evaluation Variables

Presents two methods which allow comparison of evaluation conditions, such as the use of different sheet machines, different refining methods, etc., as well as the determination of the proper number of tests and sheets to use in a given procedure. Reprint No. 43-A. American Cyanamid Co., Paper Chemicals Dept., 30 Rockefeller Plaza, New York 20, N. Y.

Super-Seal Open-Type Motors

Illustrates and describes these motors which are suitable for many applications previously requiring enclosed designs. Available in all integral horsepower frames. Bulletin 05-51B9040. Allis-Chalmers Mfg. Co., Box 512, Milwaukee 1, Wis.

Shaft-Mounted Speed Reducers

Contains engineering and selection information on single reduction drives in six sizes, and double reduction drives in seven sizes. Book 2618 Link-Belt Co., Dept. PR.

Sole-Amite Surfactants

Describes three grades of non-flux-calcined diatomaceous silicas which are now available. Technical Bulletin 758-1. Sole Chemical Corp., 27 E. Monroe St., Chicago 3, Ill.

Storage Structures and Related Materials Handling Equipment

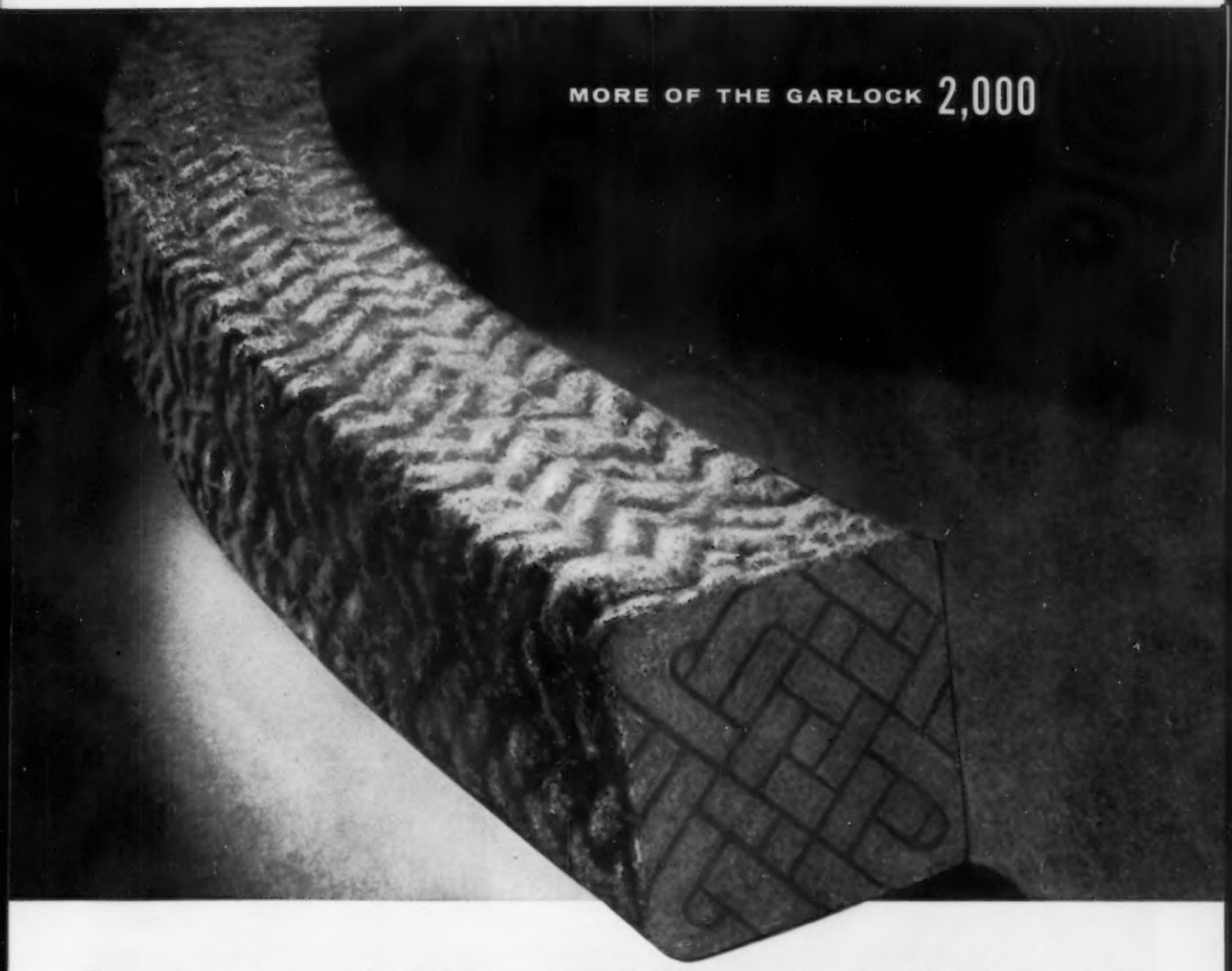
Covers a wide range of storage equipments, including glass and epoxy lined tanks, square, round, vertical and horizontal units. Includes dimensional and capacity data along with photographs and technical information. Sprout, Waldron & Co., Inc., 130 Logan St., Muncy, Pa.

Hooker Chemicals

Lists 65 chemicals among which are five recently made available on a commercial scale. A description, chemical formula, physical data, uses, and types of shipping containers are listed for each chemical. Bulletin 100-B. Hooker Chemical Corp., 2600 47th St., Niagara Falls, N. Y.

Handbook on Demineralizing

Compares various methods of water treatment, as well as indicating the comparison between demineralizers and evaporators. Also offers data on operating costs. Publication 5800. Cochrane Corp., 3144 N. 17th St., Philadelphia 32, Pa.



Replacement Costs and Downtime Minimized with GARLOCK LATTICE-BRAID* TEFLON† Packings

LONGER PACKING LIFE, Garlock LATTICE-BRAID Packings employ a through-and-through braiding construction. As illustrated above, each strand passes diagonally through the packing body at a 45° angle. This unique construction makes a completely unified structure, resulting in greater strength. And, since there is no single outer braid or cover to wear through, Garlock LATTICE-BRAID will wear far beyond the limits of ordinary packings. Less gland pressure is required to effect an adequate seal, resulting in longer sleeve and packing life, less downtime and maintenance.

LATTICE-BRAID PACKINGS OF PURE TEFLON YARN reduce process shutdowns wherever severe operating conditions are encountered. They are recommended for use on high-speed centrifugal pump shafts, reciprocating rods and valve stems against acids, caustic solutions, edible liquids, paper pulp and other products for which non-contamination is a requisite. The chemically inert Teflon yarn is non-contaminating, tough, yet resilient for effective sealing, and provides cooler operation under extreme temperatures (+500°F) and resistance to chemical exposure.

LATTICE-BRAID ASBESTOS PACKINGS WITH TEFLON IMPREGNATION reduce friction and assure effective sealing with less gland pressure. Style 5861 is recommended for service against edible products, paper pulp and other products where non-contamination is important.

LATTICE-BRAID Packings are another important part of the Garlock 2,000 . . . two thousand different styles of packings, gaskets, and seals for every need. The only complete line. See your local Garlock representative, or write for LATTICE-BRAID Folder AD-131.

THE GARLOCK PACKING COMPANY, Palmyra, N. Y.

FOR PROMPT SERVICE, contact one of our 30 sales offices and warehouses throughout the U. S. and Canada.

*Garlock Trade Mark
†DuPont Trade Mark

GARLOCK

Packings, Gaskets, Oil Seals, Mechanical Seals, Molded and Extruded Rubber, Plastic Products

JAGENBERG

JAGENBERG Synchro-Fly Cutter Model 'DQSM/GI' in a German mill, with hydraulic stack equalizing device and slat type conveyor, designed for continuous operation from 80" diameter rolls.

Introducing a new principle, well tried and proven abroad

The JAGENBERG Synchro-Fly® Sheeter

- handling toughest board up to a basis weight of 1,850 Lbs/3,000 sq. ft., or caliper .150 (single web) with unrivalled accuracy,
- ensuring clean cut and right angled edges free from fluff and ridging even on high calipers.
- In connection with board machines, JAGENBERG's Single and Duplex Cutters provide for changing both slitter and cutter sizes during full operation; deflector for defective sheets, minimum waste.
- When used as a separate cutter (off the machine), continuous operation can be provided with the aid of brake generators, automatic web tension and edge controls, automatic web feed during roll changes.
- Automatic sheet squaring.
- All driving components enclosed in oil bath gear boxes in the side frames.
- Due to genuine shear cutting action, fly knives stay sharp for up to 3 years without regrinding.

These and more outstanding advantages are offered by the JAGENBERG Synchro-Fly.

® JAGENBERG trade mark for two rotary fly knives synchronized with web speed during the cut.

JAGENBERG

Exclusive American Agents:

AMERICAN PAPER & PULP CO., INC.

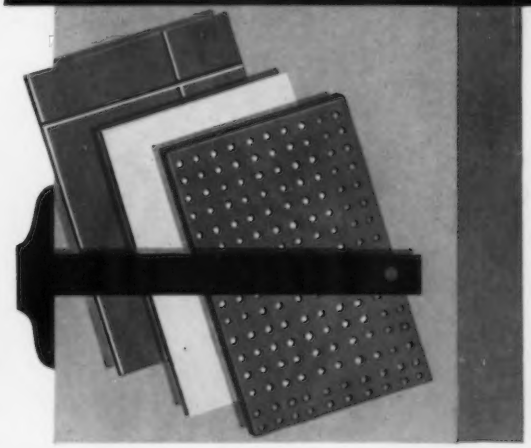
300 Fourth Avenue, New York 10, N. Y

Designed
for Abitibi

New plant for lasting profits at Alpena

To build the country's first mill to produce two kinds of hard-board and an insulating board under one roof, Abitibi Corporation called on Stone & Webster as contractor-engineer for the project. Fulfilling production quotas today, this new highly mechanized plant at Alpena, Michigan, will be operating with profit-making efficiency for years to come.

Whether it's pulp and paper, power or petrochemicals, leading companies in many different industries throughout the world have found that the engineering skill and experience available at Stone & Webster pays for itself many times over . . . whether for a solution to a single problem or for complete responsibility for an entire project. For help on your next engineering project simply call us or write our nearest office.



Stone & Webster adds profits to your project through engineering economies and extra plant efficiency.

STONE & WEBSTER
ENGINEERING CORPORATION

A SUBSIDIARY OF
STONE & WEBSTER, INC.

New York Boston Chicago Pittsburgh Houston
San Francisco Los Angeles Seattle Toronto

Left to right, are: John W. Benninghofen, partner; Robert P. Benninghofen, partner; Carl C. Shuler, partner; H. G. Tarter, V.P. Chamber of Commerce; Paul Benninghofen, partner, shown holding plaque; Arthur L. Lotz, V.P. Chamber and Chamber's chairman of Shuler and Benninghofen presentation; Arthur D. Fille, president of the Hamilton Area Chamber of Commerce.

This PLAQUE for 100 Years of Service really belongs to YOU... and YOU... and YOU!

"JUST a few days ago, representatives
of the Hamilton Area Chamber of Commerce
visited our plant . . .
presented us with a plaque for our
100 Years of Service To Industry and
in honor of being the oldest
industrial partnership in the community's history.

"Actually, this plaque should have
been presented to each of our customers
who has made our long life possible.

"For it is because of your confidence
in us that we have been able to
grow and expand through the years.

"Your confidence has not—and
will not be—misplaced.
On this, our 100th Anniversary
we re-affirmed our pledge
to continue to produce the best,
most uniform felts that can be made.
If one of our present 300 proven styles
won't solve *your* specific problem
we will be happy to
design a Hamilton Felt that will!
Just ask your Hamilton Felt Service Salesman
—or write to us—today."

YOU CAN'T BEAT
Hamilton
FELTS

Ham Feltz

SHULER & BENNINGHOFEN, HAMILTON, OHIO

DU PONT
REG. U.S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

GRASSELLI CHEMICAL BRIEFS

for the Paper Industry

Which of these important benefits could add sales appeal to your paper products?

RELEASE. Only a small amount of Du Pont Quilon® chrome complex is needed to give paper excellent release and water resistance. Frozen foods, meat, baked goods won't stick to treated paper. And paper containers *stay* durable . . . even when exposed to water and humidity.

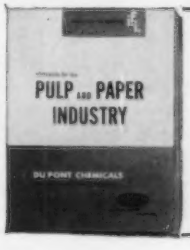
FLAME RETARDANCE. Du Pont "X-12" flame retardant adds safety to many kinds of household paper items, including party decorations, tablecloths, draperies and crepe paper. Easy to use, it can be applied in the dye bath without altering the shade produced . . . often *increases* lightfastness!

WATER RESISTANCE. Paperboard containers withstand rain, resist moisture, when they're bonded with Du Pont Weatherproof Adhesives. These inexpensive Du Pont adhesives make tough paper-to-paper bonds . . . add extra strength and durability to containers. Many firms use them, even when weatherproofing is not a requirement.

SLIP RESISTANCE. Shipping containers and bags stack solidly, safely when treated with Du Pont Ludox® colloidal silica. Coatings based on "Ludox" effectively increase surface friction, add "grip" to paper surfaces, provide excellent slip resistance to multi-wall paper bags and corrugated cartons.

Mail coupon! or your copy of "Chemicals for the Pulp and Paper Industry," which describes the benefits made possible by Du Pont Chemicals. Perhaps you'll find new ways to improve product quality, build sales appeal. E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Dept., Room N-2533, Wilmington 98, Delaware.

DU PONT
REG. U.S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY



E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Department, Room N-2533 PT
Wilmington 98, Delaware

Please send me a copy of "Chemicals for the Pulp and Paper Industry" and more information about Du Pont chemicals which offer:

☐ release ☐ slip resistance ☐ water resistance ☐ flame retardance

*Name*_____ *Title*_____

*Firm*_____

*Address*_____

*City*_____ *State*_____

Why and How Australian Paper Manufacturers Ltd. Uses Layout Models

Specially prepared at the request of Paper Trade Journal editors when they learned of this company's extensive use of models.

Paul Chaplin

Since the last World War, Australian Paper Manufacturers Limited has added two board mills and one M. G. paper mill to its nation-wide list of Mills. The Company has also carried out considerable modifications and extensions to its older producing units. Further large scale expansion has been announced, namely—a new 204″ M.F. kraft machine (known as Botany No. 7 machine) at the Company's mill on Botany Bay near Sydney in New South Wales, and large scale extension to No. 1 M.F. machine (186″) at its Maryvale mill in Eastern Victoria.

The design and construction work for this development has been carried out by the Company's engineering staff.

Layout models in various forms have been used since 1952 when a paperboard model of a new kraft mill was constructed in order to reduce the time spent by the sectional engineers and draftsmen discussing their conflicting requirements over a large file of conventional drawings.

This model was constructed to scale 1/16 inch to one foot and blueprints of the layout drawings were pasted on removable floors. Considerable engineering time was saved by the use of this simple model.

The next model was that of the stock refining department for a 200-inch M.G. fourdrinier machine (Figure 1). Particular care was taken to keep the area of this refiner room as small as operating requirements would allow and difficulties were anticipated in the runs of piping and electrical cable trays. The aim of the model was primarily to check drawings. It was constructed of timber to a scale of ¼ inch to one foot. It showed up a few drawing errors and a number of alternatives which could have been incorporated in the design to advantage.

It became apparent during the construction and use of this model, that it would have been advantageous to have made the model first and the drawings later and also that other divisions of the company could use the model to assist them in their own individual problems associated with the project.

At the time this model was made, it was the practice of engineers to prepare "preliminary" layout drawings for submission to the mill concerned and to other interested divisions of the company for comment. This system has a number of weaknesses. Engineering drawings of multi-story plants cannot be read easily and errors of interpretation lead to conflicting comments or requests for alterations which are not practicable. A form of presentation was needed which would allow production supervisors to assess the features of a scheme with greater speed and accuracy than is possible from drawings.

First experience with models gave encouragement to the idea that they could be used instead of preliminary layout drawings.

The author is a senior design engineer at the head office in Melbourne of Australian Paper Manufacturers Ltd., one of the largest companies in the Commonwealth of Australia.

Australian Paper Manufacturers has a paid-up capital of £A17 million (38 million dollars) provided by some 26,000 Australian stockholders. The company operates seven mills in four Australian states with 17 machines producing quarter of a million tons annually of paper and paperboard, mainly for packaging.

A patternmaker was engaged to do the model construction under the direction of the design engineer concerned.

The first model constructed without drawings was that of a finishing room (Figure 2).

This model was constructed to ⅛ inch to one foot and set up by the design engineer complete with finishing equipment, conveyors, inspection and wrapping tables, etc. The operators were colored to indicate supervisors, male and female operators, shift workers and day workers.

This model was used in all discussion with the operating staff and service specialists such as the materials handling engineer. Staff were encouraged to illustrate their ideas by moving the model equipment until a satisfactory layout was achieved.

The experience with this model proved that it was possible to virtually eliminate preliminary drawings, and a decision was made therefore that all future projects should be set up in model form.

Subsequent experience has shown that the models are of considerable value to the construction team in the planning stage and in the field, and also to officers responsible for training the crew who are to operate the new plant.

Models are now constructed in three major stages explained in the following.

Stage 1—Layout Development

From the flow sheet and equipment list the model maker constructs blocks of wood roughly to scale illustrating each piece of plant. On standard baseboards having "Pegboard" tops and "Perspex" intermediate floors the layout is prepared by the design engineer in consultation with staff from other sections of the company and possibly outside consultants.

On this rough model **Production Controllers** advise on manning the plant and set down the responsibility of each man so that control locations can be fixed. They also ensure that the engineer is aware of any special requirements regarding the operator's view of certain equipment from a particular control station and check access for machine clothing changes, washing down, etc.

Quality Controllers advise requirements for sampling stocks and chemicals at various points and the location of test rooms.

Maintenance Engineers set down the location for some maintenance items such as grinding vacuum boxes and re-barring jordan plugs. The maintenance engineers advise on the lifting arrangements over the equipment to be incorporated in the design, location of hatchways, etc.

Electrical Engineers advise requirements for substations and switchboards and plan major cable routes. They also ensure that access and handling facilities are available for maintenance of equipment and that safety to personnel is duly considered. Special lighting requirements can also be investigated at this stage.

The Structural Engineers are shown where columns cannot be accepted, where beam depths are critical, etc.

Civil Engineers can readily see the restrictions to the layout of roads and drainage.

Architects can see from the model where limitations to window areas are dictated by plant or raw pulp stacks. Access ways will be finalized and details of change rooms established.

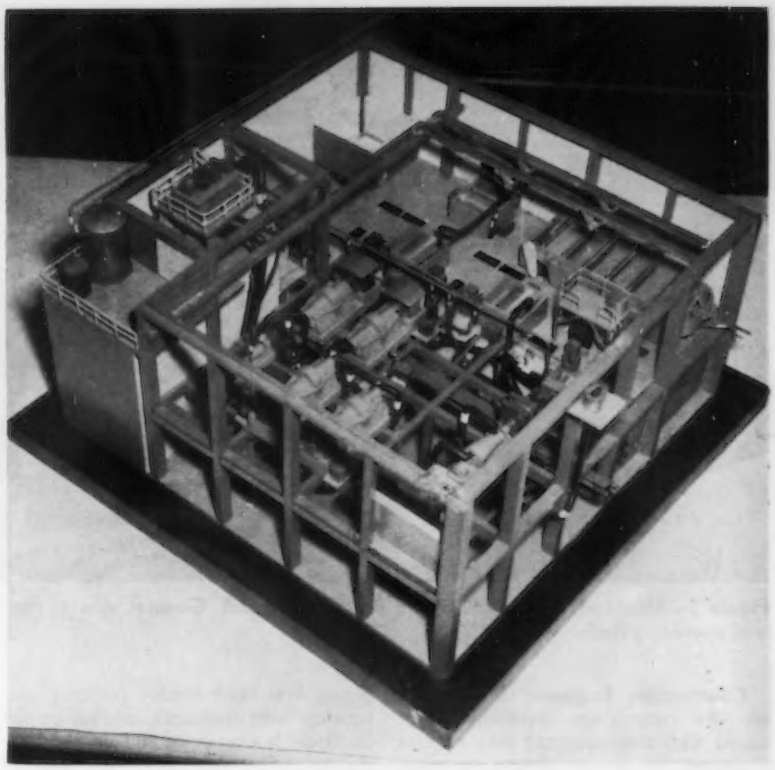
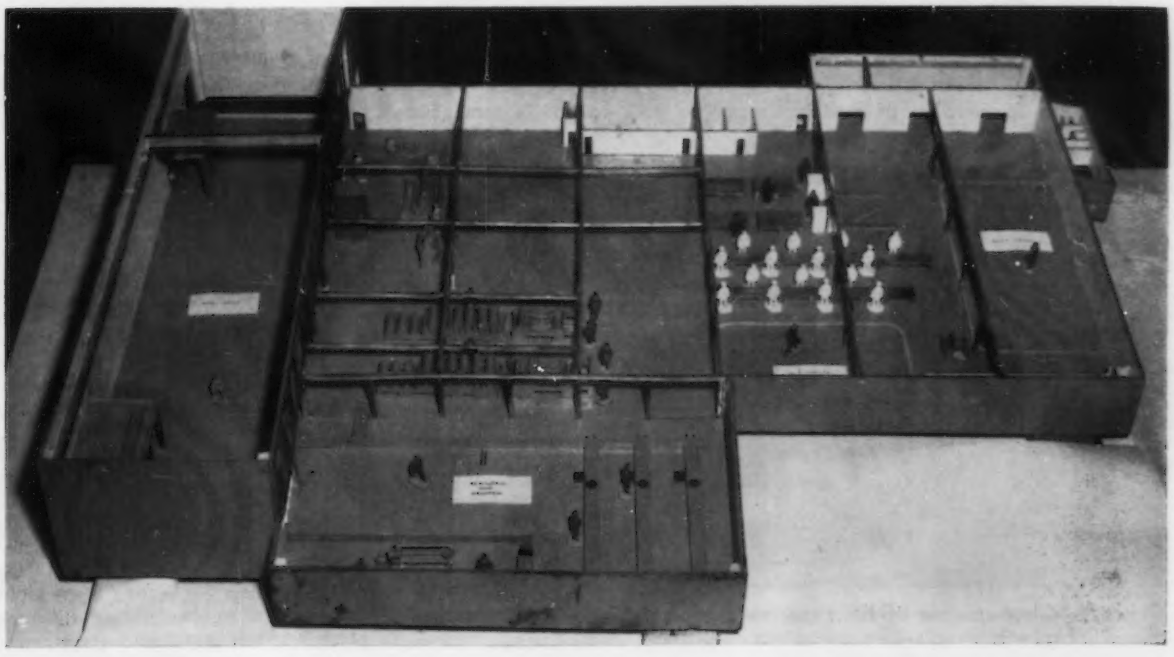


Figure 1 (above)—Stock preparation department for 200" M.G. (Yankee) Machine. One of the early models used to check drawings.

Figure 2 (below)—Finishing room for Maryvale. First model built without drawings was used in all early discussions with operating staff and service specialists.



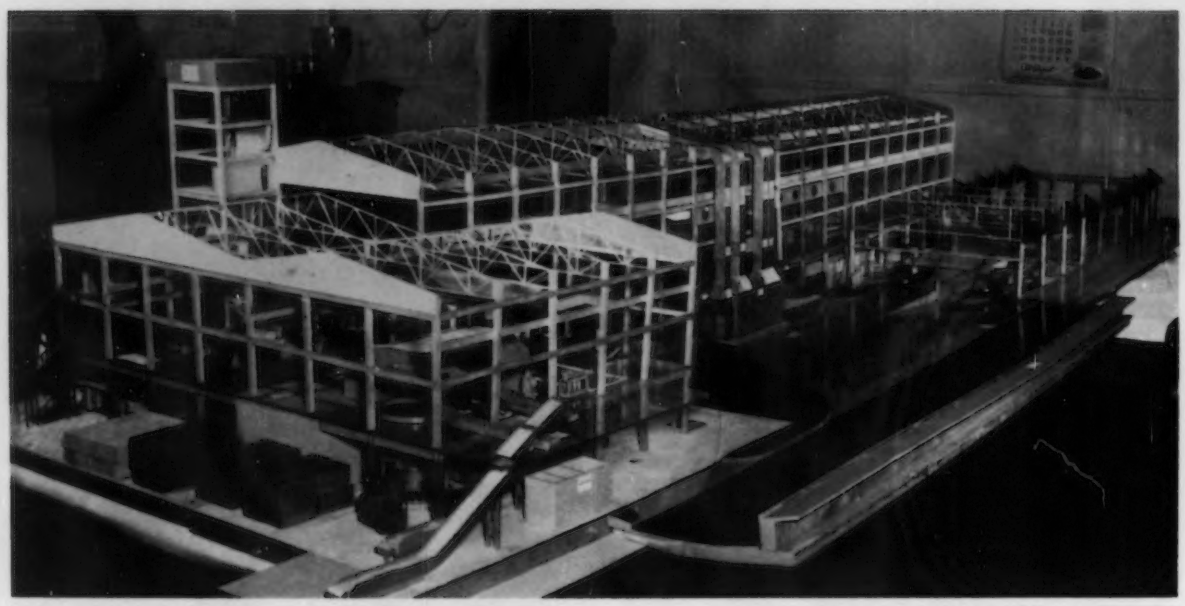


Figure 3—New kraft paper mill at the Botany Bay plant. General view of the completed model as used by construction and operating staff.

Construction Engineers can readily see the construction problems associated with the plant and may require limits on the size or weight on some sections of the equipment. They will also advise on the overall program ot construction so that detail design can proceed in a priority commensurate with their requirements.

During all these discussions the model is continuously changed to establish the best layout. In some cases photographs are taken of alternative layouts and the "pros and cons" for each recorded together with the reasons for the accepted layout.

Stage 2—Detail Design

Before the introduction of models, piping draftsmen needed constant conferences with draftsmen engaged on say electrical layout work and on air ducting to ensure that their work did not conflict, but with the model it is a simple task to add information reserving certain runs for conduits, ducting and piping. The detail drawings are then made using the model as a guide.

Stage 3—Final Development

Some items of plant, such as a proposed flow box or special blending chest may require considerable investigation before the detailed design can be completed.

As these designs are accepted, blocks illustrating such items of plant are corrected to final details. In some cases the size may be radically different from that originally envisaged but the effect on the general layout of such changes can be seen more readily in the model than on the drawings.

As detailed information comes to hand from the drawing office, such as pipe runs, tank details, etc., these are added to the model and examined to ensure satisfactory access to valves and controls and safe working conditions.

As designs are received from structural engineers and other specialists and from the suppliers of standard plant—accurate model components are made and added to the layout. (Where a number of similar pieces of plant are required, such as pumps and refiners, one model is made in wood and from it a rubber mold is formed. Any number of units can then be cast in plaster.)

In this way the drawings are checked for at least overall dimensions and the model correctly represents the stage of design at any one time.

Use of Completed Model

When the model is complete (Figure 3 and 4) it becomes available to construction staff to take to the field to assist them in discussions between the various sections of the construction team and outside contractors.

Finally, the model is used in the training of the operating staff who are normally located on the site during the closing stages of construction. Having both the model and the nearly completed mill to discuss in conjunction with the design engineer's operating instructions they become more familiar with the plant before it is put into operation.

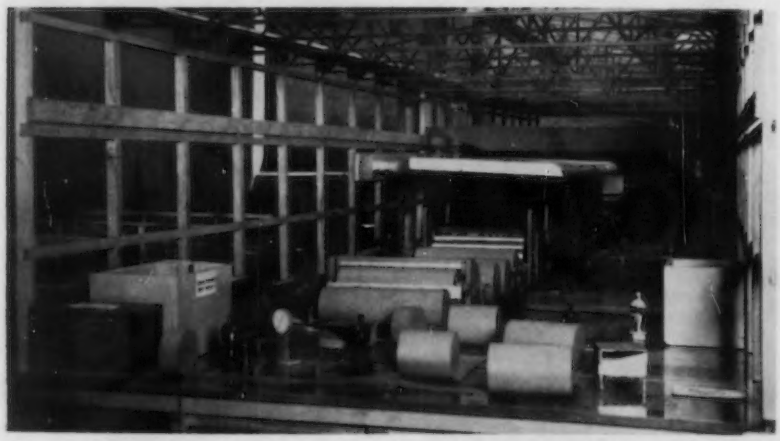


Figure 4—Close-up view of the paper machine operating floor in the model shown in Figure 3.

To Sum Up

Australian Paper Manufacturers Limited uses models because:

1—They virtually eliminate preliminary drawings thus reducing drafting hours.

2—Proposals presented in model form can be more quickly appreciated by technical staff and more clearly assessed by all. This results in a better layout in less time.

3—The effects of an alteration can be quickly seen and risk of errors reduced.

4—The various sections of the design team take less time to arrive at a satisfactory compromise on their conflicting requirements.

5—The model is of value to the construction team both in programming the job and in subsequent discussions in the field.

6—The model assists in the training of operators for the new plant.

Australian Paper Manufacturers Limited makes use of their models by:

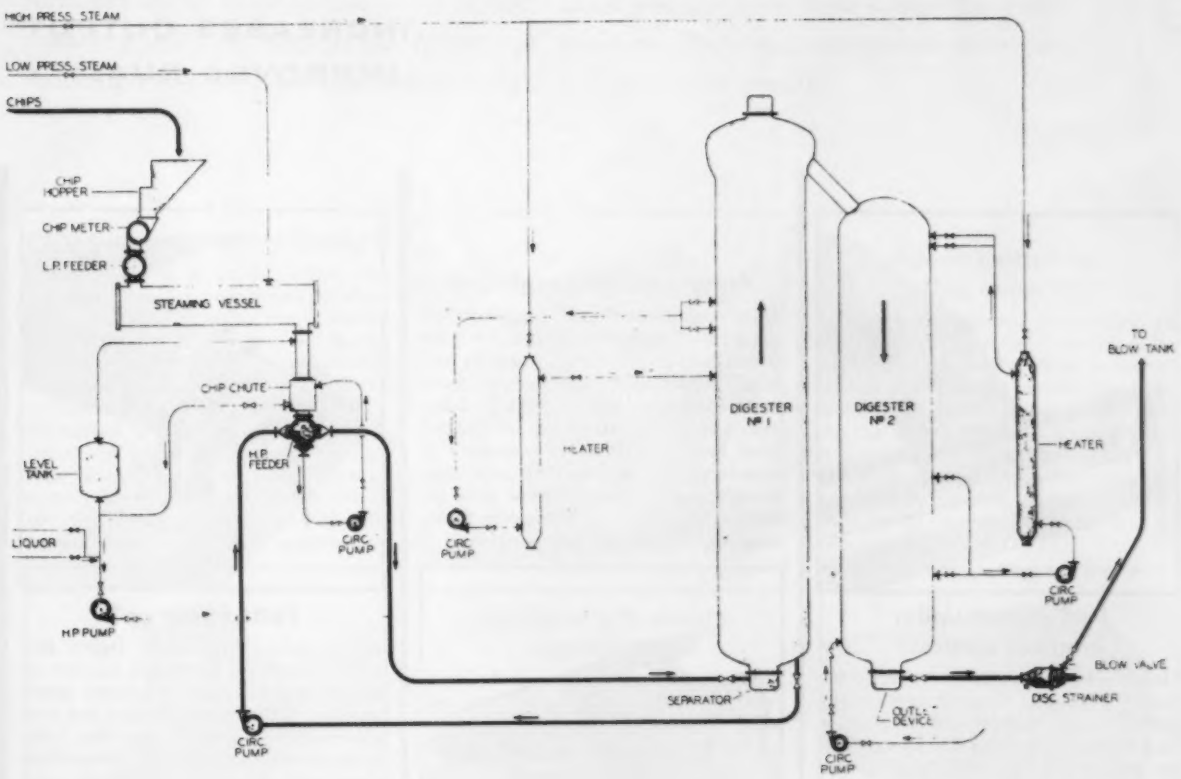
1—Encouraging all interested sections of the organization to ensure that their requirements are met in the layout.

2—Continuously keeping the model up to date as outside information is received and detail designs completed.

3—Making the model available to construction teams in the field, and

4—Making the model available to assist in the training of operators.

New Two Stage Continuous Cooking Installation at Billeruds



A very interesting experimental two-stage continuous cooking installation is in operation at the Jossefors mill of the large Swedish pulp and paper company Billeruds Aktiebolag. The equipment for this unit, provided by AB Kamyr, Karlstad, Sweden, is designed to carry out all types of two-stage cooks, both alkaline and acid or combination of the two.

As shown in the flow sheet above, chips are fed into the bottom of the first digester by a standard Kamyr feeding line consisting of chip meter, low pressure feeder, steaming vessel and high pressure feeder. In this first digester the chips move upwards and although this is somewhat unusual, Kamyr has had a commercial upflow unit in operation for many years.

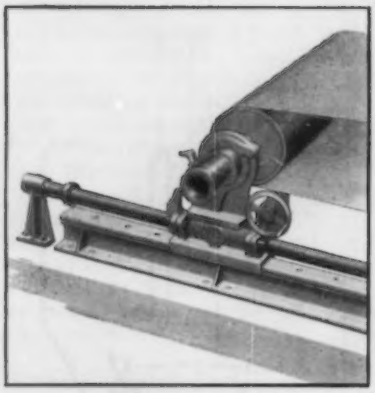
From the top of the first digester the chips flow into a second and downflow vessel, similar to Kamyr's standard kraft units used on this continent. The pulp is discharged from the bottom of this digester into a blow tank.

Both digesters are equipped with a large number of strainers at various points which allow the units to carry out the two-stage cook under a great many different operating conditions. The final results of this study should indicate the value of two-stage cooking in general and the comparative values of the various two-stage processes.

BELOIT UNIT MODERNIZATION

Is your Press Section a limiting

MODERNIZATION
WITH PROVED BELOIT UNITS
...CUTS OPERATING COSTS
...INCREASES OUTPUT
...IMPROVES QUALITY



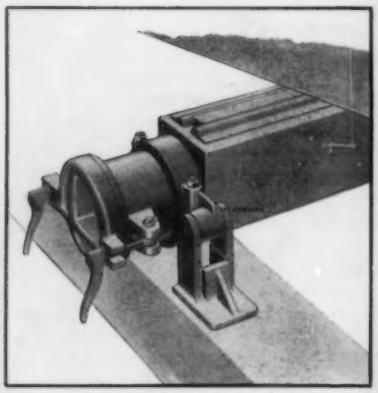
Felt stretch under positive control?

Heavy-duty Beloit felt-stretchers combined with felt tension indicators provide positive control of felt tension and stretch. Optimum felt stretch can be maintained from shift to shift, day to day. Felt life and drainage can be increased—felt guiding is more positive. Seam-straighteners are an integral part of Beloit felt-stretchers. Air motor operators are available for both stretchers and seam-straighteners.

Press crowns a problem?

If so, consider stiffened, rugged Beloit press rolls. Bolted heads coupled with Beloit heavy-wall design result in uniform deflection as opposed to press rolls with cast heads. Heavy-duty antifriction bearings are protected from loss of lubricant or entrance of moisture. Call on Beloit for grey iron, ductile iron, or granite press rolls for dependable service at press, size press, breaker, or wringer roll positions.

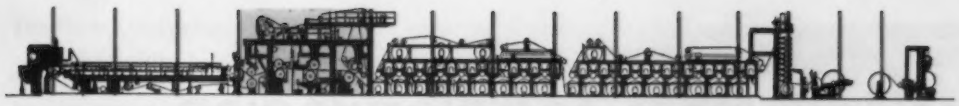
PATENTED



Felts filling up?

Many mills have found Beloit felt suction boxes a profitable answer to longer felt life and improved sheet quality. A Beloit felt suction box and shower arrangement provides full-width continuous cleaning—keeps felts clean and open. An adjustable slot width supplies just the right amount of vacuum for the specific application. A low-cost addition that can keep felts cleaner—longer.

PROVED BELOIT UNITS FOR THE PRESS SECTION: FELT ROLLS
PAPER ROLLS • SAVEALLS • PRESS DOCTORS • DIAPHRAGM
LOADING UNITS • SHOWER ARRANGEMENTS • MARKING EQUIPMENT



ONE OF A SERIES SHOWING TYPICAL BELOIT SOLUTIONS TO COMMON MILL PROBLEMS

factor in your production picture?

Modernize your press section with proved Beloit units. Components for the press section of your paper machine shown here have proved to be of special value in increasing output, improving quality, reducing machine downtime, and cutting operating costs. A Beloit press arrangement is available for every paper machine application. Let Beloit sales engineers show you the best press design for your machine. Their suggestions can pave the way to greater profits.

Felts running off periodically?

A felt lost due to guide failure can cost more than a new Beloit air diaphragm felt guide. Why not modernize with a low-cost Beloit automatic felt guide now? The patented Beloit air diaphragm guide moves the guide roll smoothly and efficiently. Its rate of response is independent of felt speed —its outside power supply reduces felt edge wear. The entire mechanism is simple, foolproof, rugged—no small parts subject to easy damage. Models available for every press application.

PATENTED

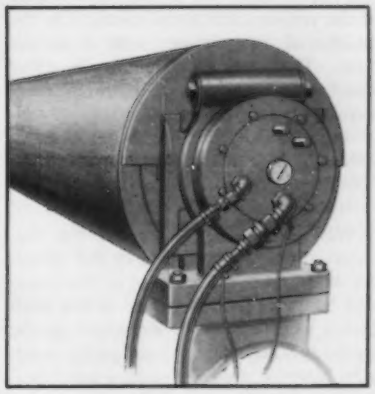
PATENTED

Heavyweight sheets a problem?

The Beloit hot press is doing a fine job on machines running heavyweight grades. The hot press dewaters the sheet after it has been raised in temperature, resulting in greater water removal and a dryer sheet to the main dryer section. The Beloit hot press arrangement may be employed as a plain hot press or a suction hot press depending upon your requirements. When used as a suction press, the hot press employs the unique Beloit air-bleed principle.

Speed limited by drying capacity?

Get maximum sheet dewatering at minimum cost with Beloit suction rolls. Machines can run better at increased speeds and with improved operating efficiency—and a dryer sheet entering the dryer section. There's a Beloit suction roll for every press section application: suction press, suction pick-up, suction pressure, suction transfer, suction felt, suction wringer, or suction hot press.



PATENTED

» **ACT!** *Write for facts —or let a Beloit Sales Engineer show you how to modernize your Press Section. Beloit Iron Works, Beloit, Wis.*

BELOIT IRON WORKS PAPER MACHINERY BELOIT, WIS., U.S.A. 100 YEARS 1858 · 1958

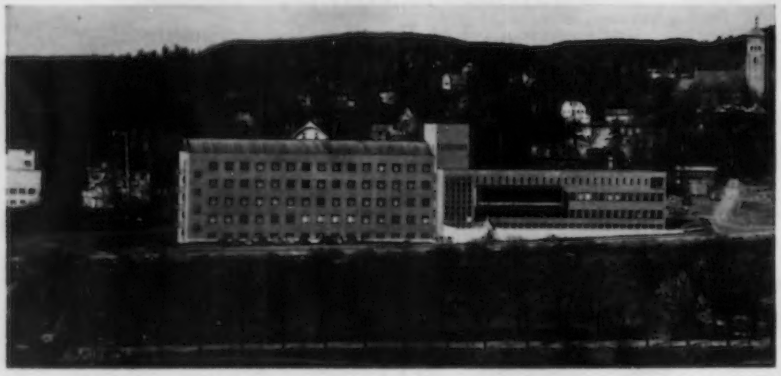
BELOIT
PAPER MACHINERY

your partner in papermaking

© 1958 BELOIT IRON WORKS

New Headquarters for Norwegian Pulp and Paper Research Institute

F. A. Abadie-Maumert, D.Sc.



Norwegian Pulp and Paper Research Institute. The floor area is 75,000 sq. ft. with working space for 100 persons.

Norway's first paper making machine was set up in 1838, using rags as raw material. In 1863 its first mechanical pulp mill went into operation, followed by the country's first chemical pulp mill in 1874. Today Norway has 90 pulp and paper mills—71 in the eastern part of the country, 10 in the south, 7 in the middle of the country and 2 in the west. Their total production in 1957 was 668,000 metric tons of mechanical wood pulp, 531,000 metric tons of sulphite pulp, 117,000 metric tons of kraft pulp, 589,000 metric tons of paper, 56,000 metric tons of board and 102,000 metric tons of wallboard.

Well over 60 per cent of the mechanical pulp, 40 per cent of the chemical wood pulp, 60 per cent of the paper and board and 35 per cent of the wallboard were exported. However, in the world market of pulp and paper products Norway produces only a small percentage. Unable, therefore, to dominate in quantity, Norway's pulp and paper industry must ensure the disposal of its products by specializing and by delivering goods of high quality.

From the crisis the industry experienced following the first world war, it learned that the pulp and paper industry had to call upon the assistance of scientific research. But it was soon apparent that the smaller mills could not manage such expensive undertakings alone.

Development of Collective Research

The idea of collective research was presented in the Association of Norwegian Paper and Pulp Engineers as early as 1918. In 1919 the Department of Industrial Supply appointed a board to investigate the question, and in 1922 a research committee was constituted. Here the possibilities for establishing a collective research institute for the pulp and paper industry were examined, and the broad outlines of a temporary research program were drawn up.

In August 1923 Dr. Sigurd Samuelsen was appointed research leader and given a capital corresponding to 1,000 dollars, but no laboratory. He began his fruitful career in quarters loaned by the University of Oslo.

From this small beginning, the Norwegian Pulp and Paper Research Institute has grown rapidly, and the continuously increasing esteem which the Institute has enjoyed must be credited to Dr. Samuelsen. It is not the least of his achievements that, during the occupation of World War II, the chemical pulp mills at his initiative and guided by the Institute, manufactured 750,000 tons of badly needed cellulose cattle fodder.

Planning the New Institute

Even though the Institute's accommodations had steadily improved during the early years, the need for larger facilities had increased still faster, and in 1940 it was apparent that the breaking point had been reached. Clearly, a new institute had to be built. It was under the leadership of Dr. Stephansen, Dr. Samuelsen's successor, that the new laboratories grew from idea to reality.

On the advice of the Royal Norwegian Council for Scientific and Industrial Research and subsequent to a parliamentary decision in 1952, the state made a grant of a site on the outskirts of Oslo for the erection of a research center. Here there was to be a central institute for industry in general and branch institutes for different industrial groups. The first of these institutes to be built was the new Norwegian Pulp and Paper Research Institute. It was erected by the pulp and paper industry in cooperation with the government and the Royal Norwegian Council for Scientific and Industrial Research.

The Institute's board of trustees has ten members representing the Norwegian government, the Norwegian Mechanical Wood Pulp Association, the Norwegian Chemical Wood Pulp Association, the Norwegian Paper Makers' Association, and the Association of Norwegian Paper and Pulp Engineers.

There is also a 13-member council representing the above associations, the University of Oslo, the Norwegian Institute of Technology and the Agricultural College of Norway. A research committee of 25 members appointed by the Association of Norwegian Paper and Pulp Engineers and divided into panels corresponding to the Institute's divisions, makes proposals and gives advice in the setting up and carrying out of research programs.

The New Laboratories

Excavation for the new building was begun in early February 1953, and the Institute moved into its new quarters in 1956.

The plant has a total floor area of 75,000 square feet. Apart from living quarters, garages, air raid shelter, etc., which have nothing to do with the building's research functions, the Institute has at its disposal 54,000 square feet enough working space for 100 persons. The Norwegian Pulp and Paper Research Institute has had to move many times, but now hopes to remain permanently settled. To this end the building was made both as large and as flexible as possible, making it easy to rearrange the interior as needed. Moreover, there is building space for future additions.

The administrative wing, apart from offices, contains a conference room seating 150, used among other things for the meetings of the Association of Norwegian Paper and Pulp Engineers. Here there is also a restaurant and the library. As technical literature is growing at an explosive rate, the library's stacks are spacious yet easily accessible. In 1957 it possessed more than 6,000 volumes dealing with all fields of basic and applied research in the wood and wood products industries. It also had 158 collections of periodicals, 140 of which are regularly digested for the industry, making a total 1300 to 1400 abstracts per year. More than 2,500 loans take place every year, and nearly 8,000 photostats are made.

The maintenance shop is relatively large and well equipped. This section is responsible not only for the upkeep of the Institute's equipment, but also for making new apparatus necessary for research. Moreover, in Norway, where most of the testing apparatus is imported, a shop capable of checking and repairing this equipment is essential.

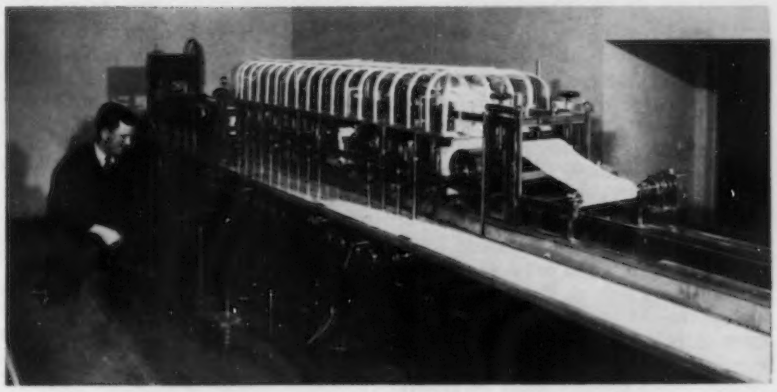
The laboratory wing is the most important. Along with the division for analysis and routine testing for the industry (5,200 analyses in 1957), there are the mechanical wood pulp division, the chemical wood pulp division, the dissolving pulp division, the paper and board division and the wallboard division.

Equipped with every modern apparatus, the new Institute is proud of possessing a pilot plant for the production of viscose, an ultra-centrifuge, a pilot plant for wallboard production, a recording spectro-photometer, a laboratory paper machine (9½ inches full width) and an Atlas ultrasonic generator.

Work of the Institute

The Institute has as its object to work, on the basis of scientific research, for the benefit of the Norwegian forest industries. It is to investigate new methods and critically test older methods for the preparation and analysis of products and raw material for the forest industries.

One of the pulp laboratories. There are divisions for mechanical, chemical and dissolving pulps.



Laboratory paper machine makes sheet 9½ inches wide. Other equipment includes a pilot plant for wallboard production.

The Regulation Fund for the pulp and paper industry provides a certain yearly sum for grants and/or scholarships for advanced studies in the industry. Some of these scholarships are awarded for postgraduate studies in foreign countries or at the Institute. The Institute also accepts trainees for practice before, during and after studies at technical schools, institutes of technology and universities.

In 1957 the total staff numbered about 95, of whom 35 were university trained. The budget totalled 2,100,000 crowns ($280,000), plus 740,000 crowns ($99,000) for building purposes, equipment and scholarships. Aside from routine measuring and testing for the industry, which brought in 665,000 crown ($89,000) last year, the work of the Institute has been concentrated on varied research projects as shown in the following sampling:

- Changes in the quality of mechanical wood pulp caused by storage of the pulp.
- Fundamental studies on the structure of cellulose based on a special x-ray technique.
- Solution of lignin and carbohydrates during the chlorination of kraft pulps.
- Comparision of methods for determination of viscosity and degree of polymerization of pulps.
- Investigations on the effectiveness of various mill beaters and refiners.
- Corrosion of aluminum in pulp and paper machine heat recovery systems.
- Causes of thickness variation in hardboards.
- Effects of ultrasonics in paper web formation.

Personnel Contribution

Forty former research associates of the Institute are now holding responsible positions in Norwegian pulp and paper mills. Adding the other former research associates, who are now working in the industry, the total exceeds 70.

Testing and control for the industry, scientific research, training personnel for the mills—these are the three principal objects of the Institute. Now that space is no longer a problem, this threefold activity cannot help but expand.

Application of Disk Refining to Pulp and Paper Production

Special consideration is given to the fundamental requirements for each different type of service and the selection of suitable refiner plates for them.

J. D. Brown
Sprout, Waldron & Co., Inc.

When discussing the physical refining of pulps, the first consideration is the type of pulp involved, particularly from the point of degree of purification. At one end of the scale there are dissolving pulps which are virtually pure cellulose, and then on through regular chemical pulps, high yield, semichemical, etc., and finally groundwood at the other end.

It is known that pulps cooked down to virtually pure alpha cellulose content, are extremely difficult if not impossible to beat to the same strength development as pulps in a higher yield range. Power input is extremely high by comparison and is brought about by greatly increased inch-bar pressures. Such pressures are possible on these pulps because they are not only tough but pliant, and they do not cut readily when well designed equipment is used for stock preparation.

In groundwood the incrustations adhering to the cellulose outer wall make the fibers or fiber bundles stiff and comparatively brittle. Only extremely light pressures may be exerted between the bars of the refiner. Otherwise, the pulp is reduced to fines and flour, by breakage, by cutting and by grinding.

With semichemical pulps, we more closely approach the conditions of groundwood than we do those of full chemical pulps. We have left a good deal of incrusting material which again is a cause of embrittlement. Though higher bar pressures may be used with semichemical pulps than with groundwoods, the amount of such pressure is relative to the degree to which the lignin materials are present.

The objective in refining semichemical pulps is first to separate the fibers one from another, with as little damage as possible. Strength development is best performed in a second pass operation after screening. The primary stage is basically one of separation and little else, though obviously some development does occur here.

When refining regular chemical pulps, we are dealing with pliant tough fibers which require and will stand up under heavy loadings.

Effect of Temperature

If high yield pulps are refined at high temperatures (preferably in excess of 180° F.) results in fiber separation are achieved beyond those that may be anticipated with cold refining.

Lignins are thermo-plastic, and a softening of them by heat permits the separation of the fibers without the same degree of breakage that normally occurs in cold refining. It is found by comparison that less pressure is required between the disks to rub apart the softened chips and fiber bundles when refining hot. With hot refining, the more pliant condition results in the fiber bundles, permitting a certain degree of bending and folding, with subsequent separation, which is very difficult if not impossible to achieve when operating a cold system without also cutting and breaking the fibers.

Heat accomplishes three purposes:

1—It reduces cutting and breakage.

2—It permits the use of somewhat increased disk pressures, though still resulting in a comparatively gentle action.

3—It gives lower power consumption because of the increased ease of fiber separation.

Too much emphasis cannot be placed upon the importance of the application of reasonably low pressures between disks to prevent breakage of the fibers in passage, when dealing with brash stocks.

In the determination of the optimum refining temperature, experimental work indicates that there are two critical thermal points. These occur at approximately 143° F. and at 177° F. Plotting temperature against quality factor, we find that at about 143° F. quality improves considerably, after which the curve tends to flatten out again to its normal rate of increase with increase in temperature. The same thing occurs again at around 177° F. The difference in quality between the two ranges, however, is quite marked, and it is there-

Figure 1—Coarse waffle style with closed periphery and flush dams.

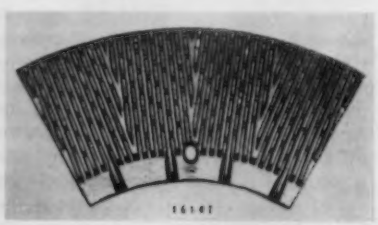


Figure 2—Narrow bar design with shallow grooves, recessed dams, and closed periphery.

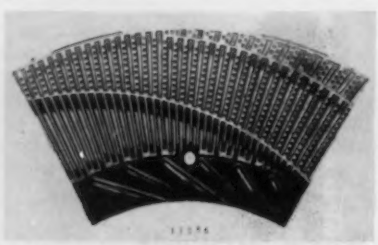


Figure 3—Closed periphery pattern with off-set dams.

Figure 4a—Rotor plate showing use of narrow bars increasing in width toward the periphery. Groove widths are constant.

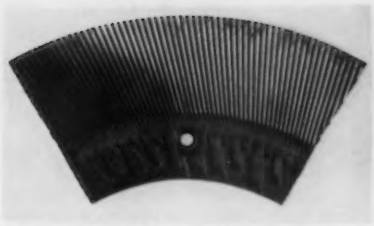


Figure 4b—Stator plate showing use of narrow bars increasing in width toward the periphery. Groove widths are constant.

Figure 4c—Peripheral control ring with dimpled face, combines control and refining action.

fore not desirable to work in the lower range.

There is a continuous improvement of a low order as indicated above, following each critical point, so that any temperature arrived at above, say, 180° F. is very acceptable, though it is not warranted in terms of improvements if such increase must be paid for by heat from an outside source such as the steam plant.

The development of cold caustic pulping for ultra high yields from hardwoods, where the chips are fiberized in disk refiners, would appear to move in the opposite direction, and this is true. On the other hand there are certain advantages to be gained with cold caustic for given grades, that offset the disadvantages of cold refining. Here yields can be higher and the pulp brighter than by the usual semichemical treatments. The balance is one of economics, as well as end product requirement.

Primary Factors in Plate Design

It is invariably a problem to specify a design for a refiner disk face that will prove to give the best results for a given type of pulp. We can very definitely draw a line of demarcation between two broad classifications of refining, and the general design characteristics in each classification will differ sufficiently from the other, so that there will be no mistaking them. It is when we stay within one classification and are called upon to specify for a particular application, that a conscientious decision is not always easy to make.

The two categories referred to consist of fiber from fiber separation on one hand where little if any "refining" takes place, and on the other, the beating effect that is imparted to pulp fibers to improve strength, etc. In the first category we place primary and secondary breakdown of coarse material. These include tailings and knots of whatever sort; semichemical pulps; steamed and shredded wood (Asplund, Masonite, etc.) and so forth. In the second, we have machine stock preparation. The basic filling design characteristics for these two classifications are quite different.

Customarily the fiberizing of coarse material is best accomplished at comparatively high consistencies that are beyond the normal pumping range. Such stock does not flow. It has to be pushed. Disk designs consisting of narrow bars and shallow grooves of various patterns are found to be of most value. Dams are employed at certain zones, and may be of a pattern concentric with the disk or at an angle offset from the center. The periphery may or may not have a dam—usually there is a dam on the rotary disk and an open periphery on the stationary. Sometimes good results are achieved with a design on one side consisting of "pockets". These may have all four edges at the surface. and look something like a waffle iron, or they may have the bars only at the surface, the pockets being formed by dams, at varying depths below the surface and set crosswise to the bars (Figures 1, 2, 3).

One of the frustrating factors in filling design recommendation in this group is the actual difference in the pulping properties of different woods, method of pretreatment, etc., etc., where the end product may be the same. On groundwood tailings we do not use the same pattern in all cases, because we find that what gives best results in one case, does not necessarily produce the best results in another. The same situation applies to semichemical pulps. Actually we are inclined to a large extent to base our decision for design type on experience. We try to sort out the various factors involved, correlate them mentally and come up with an answer. Most often we are right, but on occasions we have to re-assess a situation after the refiners are installed, to achieve the best possible results.

At this point it may be pertinent to offer some detailed explanation of why we apply certain designs for a given type of service, and other designs for other types. Before going into this, it should be noted that the outlook is not for more and more designs, but rather towards a consolidation of designs, such that for a wide variety of services we may end up with, perhaps, not more than from four to six different patterns. Over the years more than a hundred different designs have been put into service. Today, many of these have become obsolete, and it is expected that more will follow.

Groundwood and Sulphite Tailings

In Figure 4 it will be noted that dams are spaced at given intervals. The bars are narrow, but increase in width towards the periphery, permitting constant groove widths. There is considerable working surface here. These have been found to respond well to services on white spruce and balsam tailings. Southern pine tailings also respond to this design.

In the design shown in Figure 5 good results have been achieved with black spruce tailings mixed with some jack pine. Here there is a quite different action where more rubbing takes place, and of a different sort. The bars are more like teeth, and oppose each other in passage, in a sharp to sharp manner. A reversal of this pattern has

Figure 5a—Open periphery saw tooth stator design.

Figure 5b — Closed periphery saw tooth rotor design.

Figure 6a—Closed periphery with two rows of intermediate dams used for rotor.

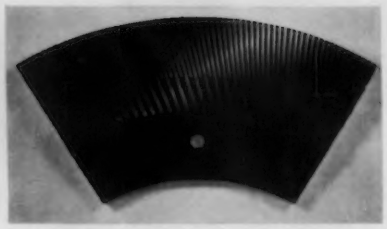


Figure 6b—Open periphery without intermediate dams used for stator.

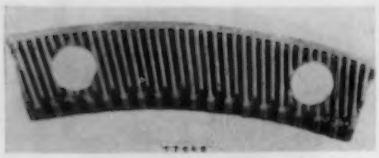


Figure 6c — Peripheral control ring; straight bars are offset from radius running to closed periphery.

Figure 7a—Fine, straight bar stator design with open periphery.

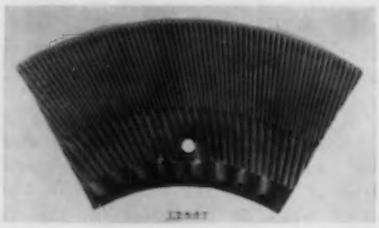


Figure 7b—Bar and groove closed periphery design without intermediate dams.

Figure 8a—Modified saw tooth design with closed periphery, inner three zones tapered for stator.

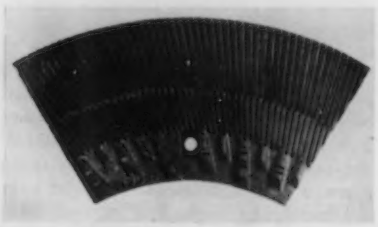


Figure 8b — Open periphery, inner three zones tapered for stator.

Figure 9a—Closed periphery, rounded leading edges, dimpled bars used for rotor.

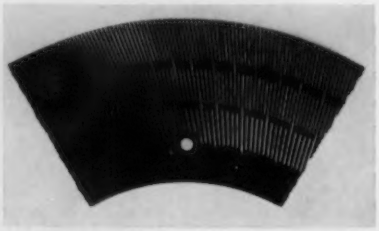


Figure 9b—Open periphery saw tooth design.

been found useful for sulphite knots, where pressure has to be applied between disks, but where cutting would be detrimental. However, if the sulphite is of a high yield type, this plate might be less satisfactory than some others. The peripheral control ring, though largely a check mechanism, does actually add in some measure to the refining. In the instance shown, the dimpled pattern on this service is of more value than others that will be shown later.

Semi-Chemical Pulps

In the case of semichemical pulp, rubbing alone is not sufficient. If we were to apply such plates as shown in Figure 5 for example, not enough work would be performed, because here we are dealing largely with a chip structure rather than with slivers, and a more drastic tearing and shredding action is desirable. Actually the plates shown in Figure 6 are a consolidation of previous designs, as referred to earlier and are capable of good performance on several applications. Were it not for the fact that considerable resistance is encountered in this country to multi-stage refining, on high yield (up to 75%) semichemical pulps, a better product could be achieved at higher freeness with two-stage refining. In that case these plates could be used successfully in the second stage as well as the first. Sometimes the designs shown in Figure 7 are used here in combination.

The peripheral control ring in this instance is a bar pattern (Figure 6) and differs in that respect from the dimpled pattern shown in Figure 4. The reason for this is that on most semichemical applications, a finished job is not demanded in the pulp mill and a higher throughput rate can be achieved with this design. Some added refining does also accrue.

Cold Caustic Pulp

Because the chips from cold caustic impregnation, though softened, are still quite hard, disks in the primary stage must tear and shred, and again we may apply designs shown in Figure 6. For this pulp multi-stage refining is required, and if refiners alone are used, depending upon the throughput rate and the end product, as well as the type of hardwoods used, we may have as many as three stages of reduction. Though these designs (Figure 6) have been used successfully for corrugating medium, so far it has been found that for finer paper products, a primary breakdown using plate patterns as shown in Figure 8 followed by the type illustrated in Figure 5 on secondary and tertiary refining have produced good results. Note the relative openness of pattern between the primary and following designs, where otherwise they are of much the same order. With these designs, the peripheral ring shown in Figure 6 is customary.

High Yield Kraft

Kraft pulp at yields above 52 per cent cannot be screened in most instances or for that matter, washed on drum type washers. It is essential therefore that it be broken down first to permit these further processing steps. This is done by placing a refiner between the blow tank and the washers. Here

we find again that the combination shown in Figure 6 gives best results. The service is very comparable to semi-chemical refining, under hot conditions. The throughput rate is relatively high since only a rough breakdown is desired, sufficient for washing with a freeness reduction not below about 650 C..S where vacuum washers follow.

In some instances, refiners are also used after the vacuum washers, to further reduce slivers and give a primary refining to the pulp before screening. This is an advisable step because it not only reduces the screen rejects, but it permits of a series operation, rather than placing the entire burden upon the machine stock preparation system. Lower loads are possible on the units ahead of the machine, thereby reducing tendency to shorten the fiber. Physical test results show the value of this added step.

Designs of value here are those that, though on the border line, do to a degree approach the second refining category referred to earlier and which will be briefly discussed below (Figure 9). These designs produce a rubbing action rather than tearing and shredding, and would be of little value in the primary stage.

Kraft Reject Refining

In this area we are again, in a sense, in the semi-chemical field. We use therefore the same general disk patterns as shown in Figure 6a for the rotor with either 6b or 7a for the stator and 6c for the control ring. The stator will be varied according to the type of wood, and knot size as a rule. It will be noted for example that Figure 6b shows a larger breaker bar zone than Figure 7a. Both have open peripheries.

Waste Paper Re-Pulping

Here the requirement is to reduce lumps or small masses of fibers still adhering to each other. Sometimes the resistance to dispersion is due to wet strength additives. Then little can be accomplished without some prior chemical treatment. In other instances, however, there is often considerable difficulty in obtaining uniform slush stock from a pulper, because of the type of treatment the paper has received during processing. Supercalendared sheets, particularly if they are comparatively old, resist dispersion to a considerable degree. Dried high yield kraft takes a great deal of time in a pulper to break down. In such cases a disk refiner, equipped with the proper tackle, is a dependable unit for doing a quick finishing job that the pulper itself cannot readily do because of its relatively gentle action.

In this case we find that designs such as Figure 4b with Figure 5; Figure 10a with Figure 10b, etc., along with Figure 11 for the control ring produce very good results. It is important that no undue shortening take place when we are dealing with waste paper which will be subjected to further refining ahead of the machines. On occasions, and more particularly where high yield kraft or dried corrugated are involved, we will use the standby rotor shown in Figure 6a with the stator from Figure 7. On this service we do not require a big breaker zone, so we do not use the stator shown in Figure 6 unless a special condition calls for it. The ring used may be from Figure 11 or 9c.

Bagasse Pulp

For pre-steamed bagasse (about 87% yield), it has been found that patterns such as shown in Figure 12 give good results. Bagasse when steamed is not tough in the manner of high yield wood chips, and does not require as drastic action, particularly where such pulps are used for insulating board. For chemical or semichemical bagasse, where the product will be bleached, and used for a paper furnish, such disk designs as shown in Figures 4 and 7 with Figure 3 for the ring will provide the best results, where this pulp is soft, and easily hydrated.

Machine Room Refining

Where a refiner is applied on fibers only, to achieve a beating effect, the situation is different. Here the stock is within the pumping range. Grooves must be deeper and wider, for good results, where turbulence must take place

Figure 9c—Peripheral control ring with saw tooth bars offset from radius and running to closed periphery.

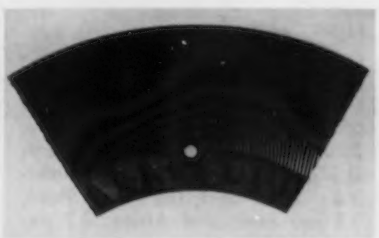


Figure 10a—Closed periphery V-tooth design.

Figure 10b—Open periphery V-tooth design.

Figure 11—Peripheral control ring, closed periphery, saw tooth design.

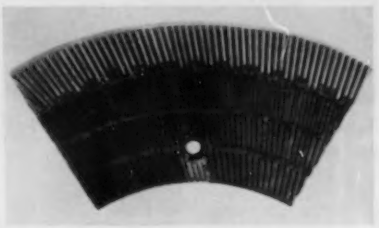


Figure 12a—Closed periphery saw tooth design with ground fine bar outer zone, inner three zones tapered.

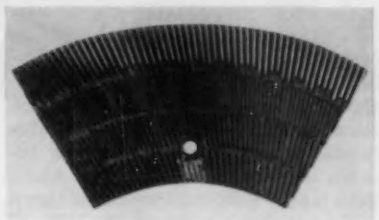


Figure 12b — Open periphery saw tooth design with ground fine bar outer zone, inner three zones tapered.

Figure 12c — Peripheral control ring, open periphery, fine narrow oblique bar design.

Figure 13—Peripheral control ring, open periphery, wide saw tooth bar design.

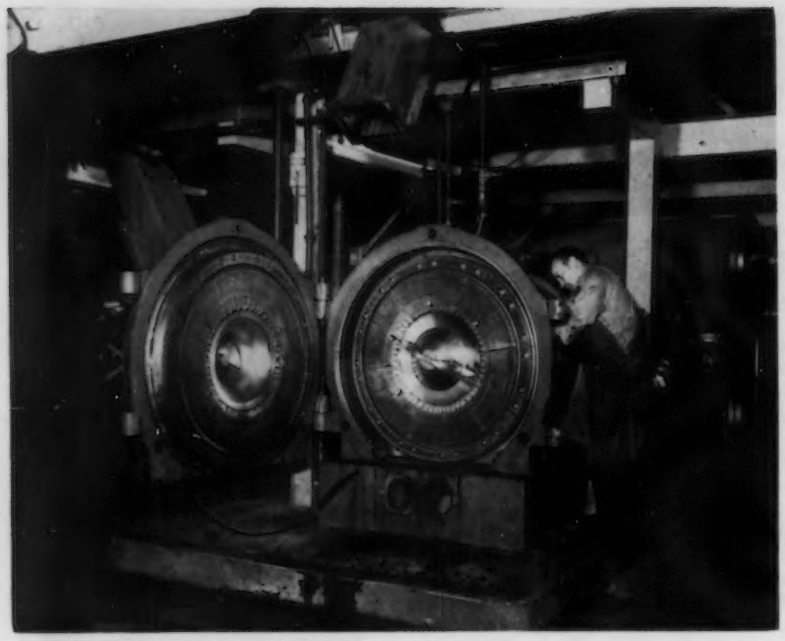


Figure 14—Disk section of a Sprout-Waldron 36-2 refiner showing rotor, stator and peripheral ring.

in these grooves. There is a definite limit here, however. The bar is a narrow bar in the true working zones, where unit pressures must be high to achieve desired results. The design must be such that the stock actually spirals in the groove, to be pulled over the bars in a laminar formation by the motion of the rotating disk. The tolerance must be very slight so that not more than about six or eight will be upon each other across the bars in passage. This represents very narrow clearances between disks. It can be achieved where there is only sufficient freedom of egress at the periphery to permit the stock to move outward at the right rate, when the combined pressure of the pump and centrifugal force are taken into consideration. To open a periphery, with too little stock will permit the disks to clash. Too closed a periphery will compel a greater gap between disks to the point where laminar flow is lost, to the detriment of fiber length, and efficiency of power use. Where a stock preparation refiner is pressurized, some modification in design will be in order, though the principles outlined will remain unchanged for best results.

Disk Speed

Disk speeds have generally been settled upon as a result of early trials, with refining for the paper machine at low speed and refining for fiber separation comparatively high. Low speed has a value where the torque is higher and disk pressures reactive to thrusts, automatically increase. It also permits the stock to be retained between the disks for a longer period, thereby permitting increased work performance. Stock preparation refining is usually done in a range of from 400 to 600 r.p.m. on disks averaging about 42 inches in diameter. For fiber separation in coarse stocks, the relative speeds are 900 to 1200 r.p.m. Here disk pressures are much less and so long as the stock in passage has a reasonable amount of work done on it, the higher speeds contribute to a higher production rate.

Actually, so far as the writer is aware, little modern work has been done to determine optimum speeds, where improved refining machines and a better knowledge of filling design have been brought about. In that respect we may be operating in a kind of vacuum, where quite conceivably, a determined effort to run down this factor in an enlightened way might change the whole present day conception.

North America continues to produce more than half the world's paper needs. The latest United Nations report shows North America producing 57.8 per cent; Europe, 28.5 per cent; Asia, 6.7 per cent; U.S.S.R., 4.3 per cent; South America, 1.2 per cent; the Pacific Area, 0.8 per cent; and Africa, 0.3 per cent.

SELECT AND ORDER

THE BOOKS YOU WANT!

MODERN PULP AND PAPER MAKING

Revised and enlarged 3rd Edition, edited by John B. Calkin.

Completely describes and discusses all principles and practices involved in modern pulp and paper making. Sturdy cloth binding, 558 pps. $10

TECHNOLOGY OF COATED AND PROCESSED PAPERS

Edited by Robert H. Mosher.

Describes latest developments in the paper converting field, fully illustrated, cloth bound, 736 pps. $15

PULP AND PAPER MANUFACTURE

(Published in 4 Volumes)
J. N. Stephenson, Editor-in-Chief

Volume I: The Preparation and Treatment of Wood Pulp, 377 illustrations, 90 tables, 1043 pages, $10
Volume II: The Preparation of Stock for Paper Making, 194 illustrations, 13 tables, 587 pages, $7.50
Volume III: Manufacture and Testing of Paper and Board, 450 illustrations, 732 pages, $11.
Volume IV: Auxiliary Paper Mill Equipment, 343 illustrations, 36 tables, 732 pages, $9.

Remittance with order.

Lockwood Trade Journal Co., Inc.
49 West 45th Street, New York 36, N. Y.

Yes, send me by post-paid return mail, each book I have checked on this coupon.

☐ MODERN PULP AND PAPER MAKING... $10
☐ TECHNOLOGY OF COATED AND PROCESSED PAPERS $15
☐ PULP AND PAPER MANUFACTURE
☐ Volume I $10.00
☐ Volume II ..... $ 7.50
☐ Volume III $11.00
☐ Volume IV ..... $ 9.00

Name ..... Title .....
Company .....
Address .....
City ..... Zone... State.....

HYDRAFINE SUCCESS STORY

from sample can to carload in one year

Rarely has a new material been accepted so readily by paper and boxboard manufacturers as Hydrafine. Mills that tried sample cans last year are now ordering carloads of this new coating clay!

In *paper coating*, Hydrafine excels in developing high brightness and gloss. In *boxboard coating*, Hydrafine gives maximum brightness and covering power at low coat weights. A clay of *extreme fineness*, Hydrafine is spray-dried in the pre-dispersed form preferred by many manufacturers. Hydrafine is also available in lump and pulverized form.

Hydrafine is produced by Huber's patented Viscontrol® process, which eliminates viscosity fluctuations normally found in all kaolin crudes.

SPECIFICATIONS:

Particle size—90-94% finer than 2 microns
GE Brightness—86-87%
Controlled low viscosity, as in all other Huber clays.

Join the growing ranks of satisfied Hydrafine users: write for your sample today!

HUBER **J. M. HUBER CORPORATION,** 100 PARK AVENUE, NEW YORK 17, N. Y.
Clays and printing inks for the container industry.

Alkaline Pulping Conference Brings Out Valuable Information

Paul D. Van Derveer

Associate Editor
Paper Trade Journal

Tappi's 12th Alkaline Pulping Conference was held in Hot Springs, Ark. from September 24 to 26. The program was well organized and the papers of great interest to those present. Many of the papers provoked long question and answer periods. In addition to the technical papers, the program included luncheon speeches by Leo Aikman of the Atlanta *Constitution* and by P. F. Watzek, president of the Crossett Co. On Friday, many of the convention-goers visited the International Paper Co. at Camden, Ark. and the Dierks Paper Co. which recently began operations at Pine Bluff, Ark.

The conference committee was headed by General Chairman W. B. Stengle of the Crossett Co. Committee members were D. O. Adams, West Va. Pulp and Paper Co.; R. E. Collins, Crossett Co.; J. E. Vassie, International Paper Co., and G. L. Earnshaw, Dierks Forests, Inc.

Effect of Active Alkali Charge

Starting off the session on alkaline pulping was E. D. Cann of the Hudson Pulp and Paper Corp., Palatka, Fla., who presented a paper co-authored by W. B. Roberson in which he discussed the effect of the active alkali charge upon pulp yields and quality in kraft pulping. Experimental data relative to the cooking of southern pine wood with various active alkali charges under mill cooking conditions were presented. The data indicated that the use of a moderate excess of active alkali, namely 18 per cent, under the relatively mild cooking conditions employed, led to optimum results in that as good or slightly improved pulp strengths were obtained with little or no loss in yields. Mr. Cann said that the acquired experience indicates that difficulties associated with pitch in pulps and with operations in the recovery unit can be avoided by the use of a moderate excess of active alkali.

Comparison of Kraft and NSSC

"The Strength Characteristics of Bleached Sulphate and NSSC Hardwood Pulps" was presented by K. G. Chesley, director of research, Crossett Co., who said that the opportunity to make a comparative study on the two pulps was possible because of the unusual situation at Crossett wherein the two different processes are used in the same plant and on the same raw material. Mr. Chesley said that bleached sulphate and NSSC pulps have been made commercially from southern oaks by Crossett. In fact, the two pulps are run through the same pulp mill and bleach plant intermittently.

It was shown by data for the pulping and bleaching process that: The initial freeness of both bleached and

W. H. Pitkin of Dorr-Oliver spoke on brown stock washing, A. W. Pesch of International Paper Co., moderator.

F. C. Ratliff, Gaylord Container, and K. G. Chesley, Crossett Co., speaker on kraft and NSSC pulps.

unbleached kraft pulp is appreciably higher than the freenesses of the NSSC pulps. The freeness of kraft, however, drops only 10 points on bleaching while the NSSC drops 60 points. Another interesting difference is that the viscosity of the bleached NSSC pulp is higher than the viscosity of the bleached kraft. Also, the zero span tensile strength of kraft pulp decreases on bleaching while the zero span tensile of NSSC does not change significantly on bleaching.

Various strength properties, such as tear factor, burst factor and rigidity factor were graphed against beating time, freeness and apparent specific gravity. Other methods such as the relative bonded area, which is calculated from measured specific light coefficient values, were also used to evaluate the strength characteristics of the pulps.

Mr. Chesley concluded by saying it appears that the most characteristic differences in hardwood pulps produced by the kraft and NSSC processes are:

1—As indicated by the zero span tensile test, the inherent tensile strength of the unbleached fibers are the same, but, on bleaching, the kraft pulp loses tensile strength while the NSSC pulp does not.

2—Bleached NSSC pulp requires appreciably less refining than any of the other pulps to develop its maximum strength characteristics.

3—At any specific freeness or sheet density the burst, tensile and tear values of the bleached NSSC pulp are higher than for the other three pulps.

4—Unbleached kraft pulp is stronger than unbleached NSSC pulp.

Chip Moisture Important

One of the papers which aroused considerable discussion was "The Importance of Chip Moisture in Kraft Pulping" by W. J. Nolan of the University of Florida. This was a report of investigations in which air dry and moist chips of slash pine were pulped under both continuous and batch conditions. Dr. Nolan said that rate of pulping was found to be unaffected by moisture content, but a definite loss in yield and D. P. number of the pulp occurred when dry chips were used. The data indicate that wood moisture should not be used in calculating liquor-wood ratio as it affects neither initial concentration nor concentration during the cook. However, said Dr. Nolan, chip moisture has a beneficial effect in reducing cellulose degradation.

Malcolm B. Pineo, Brunswick Pulp & Paper Co., moderator for Wednesday morning session.

"The Relation of Wood Genetics to Paper Strength and Yield Properties" was the title of a paper given by Dr. Bruce Zobel of the North Carolina State College School of Forestry. He discussed information on wood and fiber characteristics as they vary within the tree and between trees. The investigations were confined primarily to lobolly pine. Dr. Zobel pointed out the disadvantages of using compression wood and juvenile wood, which are both low in cellulose yield, for pulping. Normal trees contain about 8 - 10 per cent compression wood. Badly leaning or exceptionally knotty trees may contain as much as 50 per cent compression wood. Juvenile wood in loblolly pine is a cylindrical portion of the tree surrounding the pith. It is actually the oldest or first formed section of the tree and is short fibered and low in density. Dr. Zobel also pointed out that the use of trimmings for pulpwood may be good practice from a conservation standpoint, but the wood is equally as poor as juvenile wood. He also said that there may be more variation within one tree than there is between two trees of different species.

Peroxide in Bleaching

In a paper on the use of peroxide in bleaching pulp by A. F. Chadwick, F. L. Fennell and H. E. Wagoner of E. I. du Pont de Nemours, alkaline peroxide solutions were recommended for bleaching kraft pulp because they cause little degradation and give excellent brightness stability. Mr. Chadwick, the speaker, said it has been found that these advantages can best be obtained by bleaching kraft pulp in a process which includes both chlorine dioxide and peroxide stages. The preferred process consists of the following five stages: chlorination, alkali extraction, hypochlorite bleach, chlorine dioxide bleach, and peroxide bleach.

H. C. Martin of Olin Mathieson Corp. gave a paper titled "Sulphidity Control with Elemental Sulphur" in which he described a process for the introduction of elemental sulphur to the kraft liquor system. This process consists of the reaction of the sulphur with a small amount of white liquor, or caustic and the introduction of the solution into the black liquor as it leaves the

A. F. Chadwick, E. I. du Pont, who spoke on peroxide bleaching, and Burton Helberg, P. H. Glatfelter.

B. H. Bamer of Stone Container Corp. who spoke on cold caustic pulping of mixed hardwoods.

G. E. Lockwood, Paper Trade Journal, Arthur Brooks and T. T. Broun, both of Columbia Southern.

wet bottom of the electrostatic precipitator.

Sivola Process

The Sivola sulphite cooking and recovery process was described by E. H. Kennedy of Combustion Engineering, Inc. This process consists of a sodium bisulphite first stage followed by an alkaline stage in the same vessel. The major portion of delignification is accomplished in the first stage which is a true bisulphite cook (pH=4.0). Sodium carbonate is injected into the digester for the second stage to produce a pH in the range of 7.5 to 9.5. By adjusting the relative time of the two stages, the temperature, and the pH of the alkaline stage, a wide range of pulp types can be prepared from all of the wood species investigated.

Mr. Kennedy said the advantages of high combined SO_2 pulping are combined with the effects of an alkaline cook to yield a very versatile process whereby pulps can be made having strength comparable to kraft, but yet are easy bleaching—like conventional sulphite.

Flow diagrams also revealed the possibilities of using the recovery process for mixed spent liquors involving single-stage bisulphite or two-stage bisulphite-soda with kraft, soda, or NSSC digestions.

J. S. Buchanan of Nekoosa Edwards Paper Co. next spoke on work carried out at their research laboratories on pulping Lake States hardwoods, including mixed oak, aspen, birch, and maple using the two-stage (bisulphite-soda) digestion. Jack pine pulping by this process was also investigated.

Following presentation of these papers, Mr. Buchanan was questioned by R. Q. Boyer of Western Precipitation Corp. concerning permeability determination and the use of sodium carbonate in the alkaline second stage. The reply was that sodium carbonate had been used in the laboratory work, and in the commercial digester, sodium hydroxide was used with results equally as good as in the lab work. Mr. Boyer further said that he would like to compliment Combustion Engineering on getting people interested in this technique and that it is the real promise for the sulphite industry. He said that this technique of cooking can be adapted to any recovery system without being limited by the Sivola recovery.

R. H. Taylor and N. G. McLean, both of Finch, Pruyn & Co., and R. T. Bingham, TAPPI.

Semichemical Session

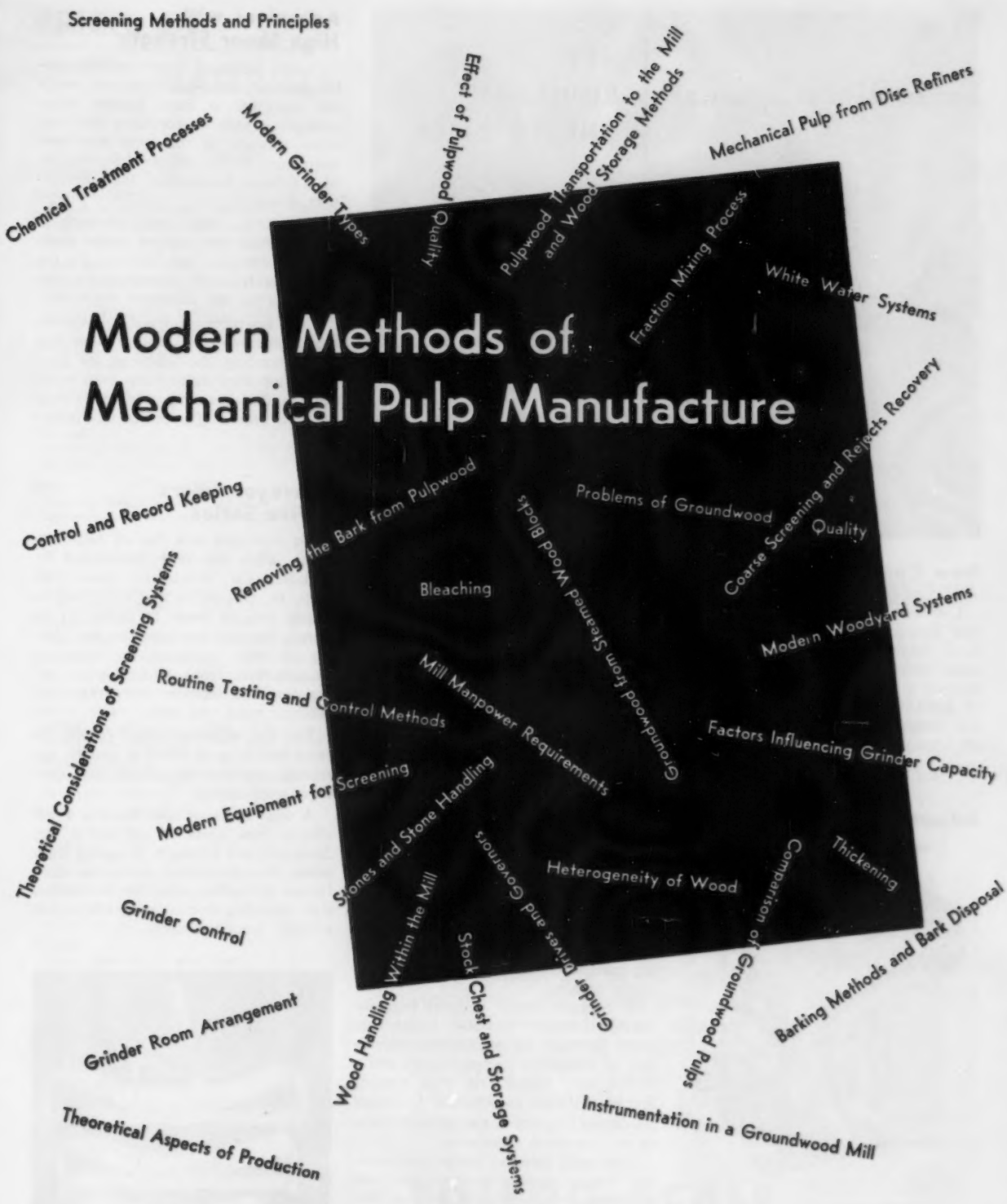
The last three papers of the day were on semichemical pulping. K. J. Brown of the Forest Products Laboratory gave a paper titled "Cold Soda Pulping of Southern Hardwoods", and B. H. Bamer presented a paper co-authored by H. Miller in which he discussed cold caustic pulping of mixed hardwoods as carried out at the Stone Container Corp.

The planning, construction and start-up of a 70-ton per day neutral sulphite pulp mill operating on mixed hardwoods was covered in a paper by N. G. McLean of Finch, Pruyn & Co. Co-author of the paper was R. H. Taylor. Mr. McLean also mentioned that they greatly appreciated the spirit of co-operation and helpfulness shown by other mills in the paper industry in solving certain start-up problems.

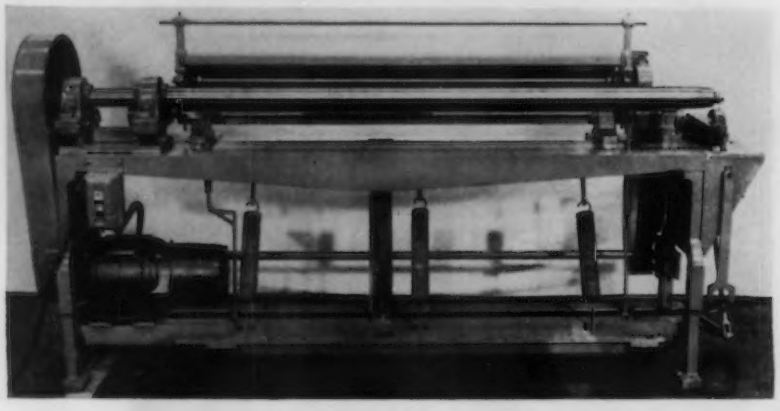
Other Papers

Other papers presented were: "Alkaline Pulping Spruce-Part II. The Change in Pulp Properties Throughout the Cooking Cycle" by W. D. Kerr, Frazer Companies Ltd., and J. S. Hart, Pulp & Paper Research Institute, Canada; "Theoretical Consideration on Pre-Deliquoring in the Brown Stock Washing System" by K. Spiegelfeld and F. Knoll, Nettingsdorfer Papier und Sulfatzellulose Fabrik A.G., Austria. The paper was given by W. H. Pitkin of Dorr-Oliver; "Application of Newer Flash Drying Techniques to High Grade Chemical Pulps" by T. Dunbar, D. & S. Engineering Ltd.; and "The Surface Reaction Method for Color Removal from Kraft Bleachery Effluents" by F. Berger and R. J. Brown, National Council for Stream Improvement.

Dr. A. F. Johnson of Buckeye Cellulose Corp. in a paper titled "Advanced Experimental Design in Cellulose Experimentation" attempted to show the audience how to lay out, by statistical methods, an experiment to give the best possible data with a minimum amount of work.


Screening Methods and Principles
Chemical Treatment Processes
Modern Grinder Types
Effect of Pulpwood Quality
Pulpwood Transportation to the Mill and Wood Storage Methods
Mechanical Pulp from Disc Refiners
Fraction Mixing Process
White Water Systems
Modern Methods of Mechanical Pulp Manufacture
Control and Record Keeping
Removing the Bark from Pulpwood
Problems of Groundwood
Coarse Screening and Rejects Recovery
Quality
Bleaching
Groundwood from Steamed Wood Blocks
Modern Woodyard Systems
Theoretical Considerations of Screening Systems
Routine Testing and Control Methods
Mill Manpower Requirements
Factors Influencing Grinder Capacity
Modern Equipment for Screening
Stones and Stone Handling
Heterogeneity of Wood
Thickening
Grinder Control
Wood Handling Within the Mill
Stock Chest and Storage Systems
Grinder Drives and Governors
Comparison of Groundwood Pulps
Barking Methods and Bark Disposal
Grinder Room Arrangement
Theoretical Aspects of Production
Instrumentation in a Groundwood Mill
Economic Importance, Main Properties, and Uses of Groundwood

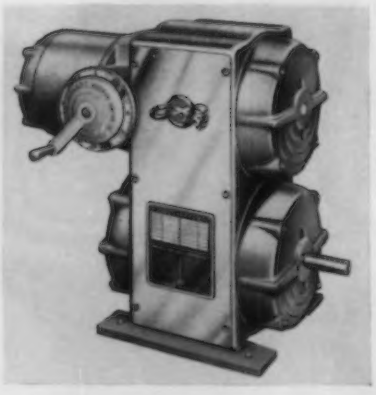
. . . written by K. H. Klemm, this new book in 241 pages comprehensively covers all aspects of groundwood pulp production. Price: $5.00 from Lockwood Trade Journal Company, 49 West 45th Street, New York 36, New York



New Core Cutter Line, Result of Design Cooperation

Cameron Machine Co., Dover, N. J. and Sonoco Products Co., Hartsville, S. C. have announced an agreement under which Cameron will manufacture and sell a complete line of core cutters of Sonoco and Cameron design. The line includes units suitable for cutting all types and sizes of paper cores and tubes for use in the paper, film, foil and general converting industries. The cutter units range from models for precision recutting "one-at-a-time" to semi-automatic gang cutters and heavy duty mill type cutters. Illustrated above is the Cameron-Sonoco single spindle, manually operated core cutter.

Adjustable Speed Drive is Mounted In Many Positions



The Louis Allis Co., 427 E. Stewart St., Milwaukee, Wis., recently announced a new mechanical adjustable speed drive, called the Allispede Drive. The drive operates from an a.c. power source and is available in ratings from 1 to 20 h.p. with output speeds of 1 to 10,000 r.p.m. Infinitely adjustable speed are achieved over ranges up to 8 to 1.

The drive can be vertically or horizontally mounted with location of the output shaft and motor in any of four positions, and location of speed changing mechanism on top, right or left of motor housing.

A constant speed, squirrel cage induction motor provides adjustable speed through the mechanical interaction of adjustable diameter discs and a ribbed belt. Motor and drive housing are of cast-iron construction to assure rigidity of alignment and provide maximum corrosion resistance.

The unit's internal design distributes belt tension equally between four ball bearings for maximum bearing life, and permits rapid belt replacement without removal of shafts or discs. Modifications available include remote control, tachometer indicators, special flanges, etc., and a synchronous induction drive motor can be substituted for the squirrel cage motor where more accurate speed regulation is required.

Adhesives with High Shear Strength

A new family of three synthetic-rubber, phenolic-resin-base adhesives, which are reported to have greater shear strength at high temperatures than any other adhesive of this type, has been introduced by the adhesives department of Raybestos-Manhattan, Inc., Bridgeport, Conn.

At 600°F., their shear strength is 495 pounds per square inch compared to 200 p.s.i. and 220 p.s.i. for the two other Buna N, phenolic-resin-base adhesives on the market.

Used for rubber-to-metal, plastics-to-metal, metal-to-metal and friction materials bonding, the adhesives are thermosetting; they differ from each other only in the percentages of solids they contain, providing a choice of viscosities.

Conveyor Idlers in Five Series

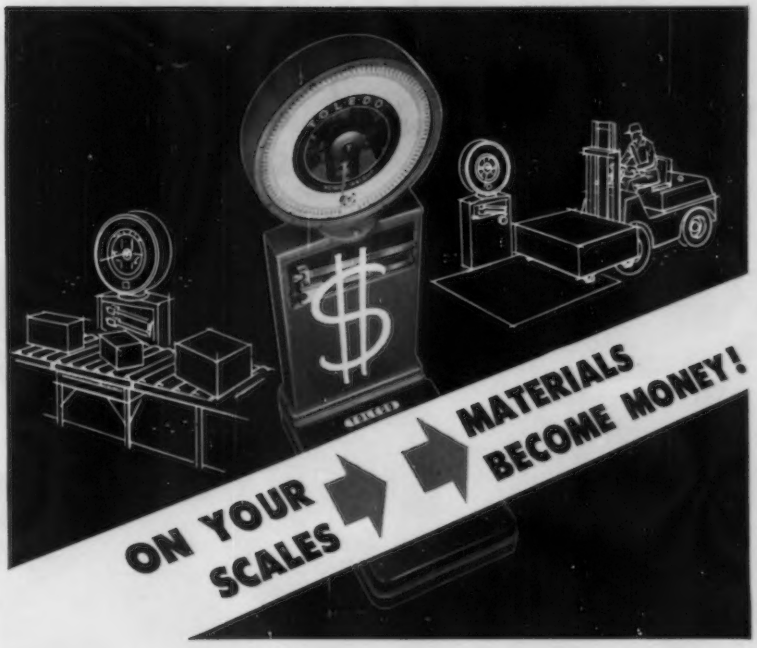
An expanded new line of belt conveyor idlers has been introduced by Link-Belt Co., Prudential Plaza, Chicago, Ill. Offered in five series and in widths ranging from 14 inches to 84 inches, the new line increases the number of idler variations the company manufactures from 38 to 64. In all, the new line includes more than 630 different types and sizes.

The five series of idlers permit the exact matching of idlers to specific operating requirements of all belt conveyor applications.

A wide range of idler types is available in most series. In addition to flat, 20-degree and 45-degree troughed idlers others include: rubber cushioned idlers for use at loading points; positive action and actuating disc training idlers, and variable troughed idlers.

PRICES OF MATERIALS

Aluminum sulphate:			
grd. coml. bulk, c.l. wks.	..cwt.	$2.00	/ —
grd. iron-free, c.l. wks.	...cwt.	3.55	/ —
Casein, acid prec.:			
dom. sh. pt, c.l., (30 mesh)	cwt.	56.00	/ —
Agr. ex dock	.....cwt.	18.75	/20.00
New Zealand	.....cwt.	23.25	/24.00
Caustic soda:			
c.l. wks. solid, 76%	.....cwt.	4.80	/ —
flak. & grd. drums, c.l.	...ewt.	5.20	/ —
liquid 50% tanks	....	2.90	/ —
liquid 73% tanks	....	3.00	/ —
China Clay			
dom., dry-grd., airfloat:			
325 mesh bgs., c.l. Geo.	ton	10.00	/12.00
300 mesh, bgs., c.l. Geo.	ton	13.50	/14.50
imp., white, lump, c.l. ex. dock		20.00	/35.00
Chlorine:			
single-unit tanks, works	..cwt.	3.15	/ —
multiple unit, 2-5 cars per yr.		5.75	/ 4.05
Lime:			
hydrated, bulk, c.l. works	..ton	17.25	/ —
quicklime, bulk, c.l. works	ton	14.25	/ —
Gum rosin:			
K. M. N. drums, c.l. Savan,	cwt.	7.80	/ 8.00
Rosin size:			
70%, gum & pale paste, tank cars, south, sh. pt.	.....cwt.	7.51	/ —
Saltcake:			
dom. bulk, 100% anh. wks.	ton	28.00	/ —
Soda ash:			
light, 58% ash bags, wks.	cwt.	1.85	/ —
bulk, c.l. wks.	..... cwt.	1.55	/ —
Sodium chlorate:			
drums, c.l., wks.	.....cwt.	9.00	/ —
drums, l.c.l., wks.	.....cwt.	9.50	/10.50
Sodium peroxide:			
dms., c.l. E. of Miss.	.....lb.	.20½/	—
l.c.l. (same basis)	.....	.21	/ .21½
Sodium silicate, 40° Be.:			
tank-cars, wks.	.....cwt.	1.20	/ —
drums, c.l. wks.	.....cwt.	1.55	/ —
47° Be. WW.			
tank-cars, c.l. wks.	.....cwt.	1.90	/ —
drums, c.l. wks.	.....cwt.	2.25	/ —
Soybean, protein:			
chem. isol., wks. c.l. bags	..lb.	.19	/ .23
Starches:			
Corn, multiwalls, c.l. prod. plant:			
pearl	.....cwt.	6.49	/ 6.75
white, dextrins	.....cwt.	8.08	/ 8.20
chlorinated	.....cwt.	8.25	/ 8.35
potato, Idaho, c.l. wks.	cwt.	6.35	/ —
East, fr. all. 50 cents cwt.			
potato, Maine, c.l. wks.	cwt.	6.50	/ —
Sulphuric acid:			
60° Be. cbys. c.l. wks.	....cwt.	2.00	/ —
l.c.l. wks.	.....cwt.	2.30	/ —
tank-cars, wks.	.....ton	18.60	/ —
Sulphur:			
crude, c.l. mines, contract,	long ton	23.50	/ —
f.o.b. vessels Gulf dock	...ton	25.00	/ —
Sulphur dioxide:			
liquid, coml. cyl., wks.	...lb.	.10	/ .12
multi-unit cars, wks.	.....lb.	.0535/	—
Talc, fibrous grd., bags:			
c.l. wks., N.Y.	.....ton	28.00	/ —
l.c.l. wks., N.Y.	.....ton	31.00	/36.00
Titanium dioxide:			
anstase, c.l. dlvd. E. bags	..lb.	.25½/	—
l.c.l. dlvd.	.....lb.	.26½/	—
rutile, c.l. dlvd.	.....lb.	.27½/	—
l.c.l. dlvd.	.....lb.	.28½/	—



It will pay you to check now

on weighing efficiency in your plant!

For proper cost control, efficient weighing is a prime requirement. Weight records directly affect costs, quality, inventory control and customer billing. You can avoid weighing errors and inadequate weight data by placing the right scales in the right places . . . all properly integrated in a *plant-wide weighing system* to supply basic accounting records on materials received, transferred and shipped.

You can easily check up on the job your scales are now doing. Just ask for the exclusive Toledo Weight Fact Kit. A Toledoman will gladly explain how it will help you detect and correct weighing inefficiencies in your plant. REQUEST YOUR WEIGHT FACT KIT NOW. No obligation. Address Toledo Scale, 1424 Telegraph Rd., Toledo 12, Ohio.

TOLEDO SCALE

DIVISION OF TOLEDO SCALE CORPORATION

Headquarters for Weighing Systems

SERVICE Factory-Trained 200 Cities

PORTABLE SCALE

BASIS WEIGHT SCALE

FLOOR SCALE

AUTOMATIC LAB SCALE

Knife Coating Line

This complete laboratory air knife coating line has been installed by Frank W. Egan & Co. of Somerville, N. J., for experimentation and demonstration. It features a 10-foot-long high velocity air dryer with 5 foot zones at top and bottom and will take an 18 inch web and attain speeds up to 1,000 F.P.M.

Elliott Co., of Jeannette, Pa. has appointed J. R. Lemmon as eastern region manager with headquarters in Philadelphia. Mr. Lemmon has been with Elliott since 1921.

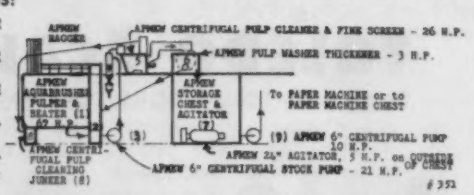
Succeeding Mr. Lemmon as district manager of the Philadelphia office is H. D. Moll. Since 1946, he has been with the Philadelphia office.

Minneapolis - Honeywell Regulator Co.'s vice president and general sales manager, Gavin S. Younkin, is taking over active direction of the sales activities of the company's Datamatic Division located in Boston, which produces the high-speed data-processing system known as the Datamatic 1000.

The Datamatic Division is headed by Walter W. Finke as president. Previously sales of the Datamatic 1000 system—the newest of the so-called giant "brains" for business use—were under the direction of John Johnson who has left the division to take another position.

CLEAN PAPER IS PRODUCED BY APMEW PATENTED SYSTEMS AND EQUIPMENT
that REMOVES: ASPHALT, TAR, INK, COLORS, DIRT, JUNK, and
In SOME MILLS EARNED UP TO $3,000.00 DAILY OVER MARKET PRICE AND PROVIDES PROFITABLE GOOD BUSINESS IN SLOW TIMES.
APMEW CENTRIFUGAL SWIRLING PULP CLEANING STOCK PREPARATION SYSTEM
PRODUCES CLEAN PAPER **by having MANY, CENTRIFUGAL SWIRLING PULP CLEANING OPERATIONS COMBINED IN THE APMEW MACHINES that INCLUDE FOUR FINE SCREENING OPERATIONS and FOUR PULP WASHING OPERATIONS:**

1. **Up to $23,000.00 YEARLY POWER SAVINGS.**
2. **Up to $10,800.00 YEARLY LABOR SAVINGS.**
3. **Up to $28,800.00 YEARLY FIBRE SHRINKAGE SAVINGS.**
4. **Up to $40,000.00 SAVINGS IN PURCHASE COST.**
5. **Up to $13,800.00 SAVINGS BY SALVAGING REPLACED MOTORS, DRIVES, BEATERS.**


APMEW BAGGER
APMEW CENTRIFUGAL PULP CLEANER & FINE SCREEN - 26 H.P.
APMEW PULP WASHER THICKENER - 3 H.P.
APMEW AQUABRUSHER PULPER & BEATER (1) 62 H.P.
APMEW STORAGE CHEST & AGITATOR (7)
To PAPER MACHINE or to PAPER MACHINE CHEST
APMEW CENTRIFUGAL PULP CLEANING JUNKER (8)
(9) APMEW 6" CENTRIFUGAL PUMP 10 H.P.
APMEW 24" AGITATOR, 5 H.P. on OUTSIDE OF CHEST
APMEW 6" CENTRIFUGAL STOCK PUMP - 21 H.P.
#352

6. **MANY OTHER VALUABLE FEATURES OF SAVINGS, that add up to EARNING AND RETURNING THE HIGH YIELD INVESTMENT, TWO OR THREE TIMES YEARLY.**

COMMUNICATE WITH US **APMEW, INC.** **P. O. BOX 1, GLENS FALLS, N. Y.**

Hooker Chemical Corp., Niagara Falls, N. Y., acting upon the recommendation of R. Lindley Murray, board chairman, has named Thomas E. Moffitt, Hooker president, to succeed Mr. Murray as chief executive officer of the company. Mr. Murray has held the office since October 1955, and Mr. Moffitt was elected president of the company on November 20, 1957.

Mr. Murray has agreed to continue as chairman of the board, a position he has held since June 1951, and plans to remain in active service until December 1, 1959, as previously requested by the board.

Borden Chemical Co. has appointed L. George Hoth as manager of advertising and merchandising. The promotion of Mr. Hoth, formerly merchandising manager of the consumer products department, followed consolidation of the company's advertising and merchandising functions into a single operation.

Arkansas Louisiana Chemical Corp., Shreveport, La., has named Harold W. Brainerd Jr. chemical sales representative at the firm's chlorine plant at Pine Bluff, Ark.

Jefferson Chemical Co. has appointed three new salesmen. Robert E. Lee and Patrick W. Loftus will report to the company's Chicago office and Ellsworth F. Benson will report to the New York office. Mr. Lee was formerly employed by the Upjohn Co., Mr. Loftus and Mr. Benson were with Dow Chemical Co.

C. E. Beaver
Buell Engineering

John Leidy
Waterbury & Sons

Buell Engineering Co., has announced that Charles E. Beaver will join its sales and marketing staff. He has been vice president of sales and a director of Research-Cotrell, Inc., the company's wholly owned subsidiary.

H. Waterbury & Sons Co., Oriskany, N. Y., has appointed John Leidy as sales representative for the Penjerdel (Pennsylvania - Jersey - Delaware) area. Mr. Leidy was formerly associated with Fraser Paper, Ltd. for 6½ years, where he worked in the maintenance, engineering and paper production departments.

Allis-Chalmers Industries Group, has appointed J. E. Watson Jr., former manager of the Miami district, to be the manager of the firm's New Orleans district. Mr. Watson succeeds R. F. Muller, who retired October 1 after 38 years of association with the New Orleans district.

Bailey Meter Co.'s New York district office has relocated its office headquarters at 150 E. 43rd St., New York 17, N. Y. The New York district is under the managership of H. C. Wheaton.

Joseph T. Ryerson & Son, Inc., has appointed John A. Houston assistant general manager of the Philadelphia steel service plant. For the past four years he has been assistant general manager of sales for the nation wide group of Ryerson plants, with headquarters in the company's general offices in Chicago.

Johnson Wire Works Ltd. of Montreal, Canada has formed a new company to be known as Atlanta Wire Works Inc. to weave paper mill wire cloth in the southern United States. A plant is being erected in Atlanta, Ga. and is expected to be in operation in mid-1959.

Mount Hope Machinery is making a new addition to its plant in Taunton, Mass. J. D. Robertson, president, says, "This new addition incorporates the most advanced ideas of modern plant architecture together with increased personnel comfort and efficient working conditions—year round air conditioning and a new system of shadowless, indirect lighting. It will greatly increase Mount Hope's shipping facilities, house an enlarged engineering department and provide much needed additional general office space."

OBITUARIES

Elbert M. Stanton, 58, died suddenly September 11 at his home in Franklin, Ohio.

In 1934 Mr. Stanton was made superintendent of the Philip Carey Felt Mill in Cincinnati. At that time he was the youngest superintendent in the Miami valley. In 1945 he worked with the late Tom O'Flynn to erect a paper mill in San Juan, Puerto Rico.

Charles S. Trefrey, 60, for many years New England sales representative of Mead Papers, Inc., died September 25.

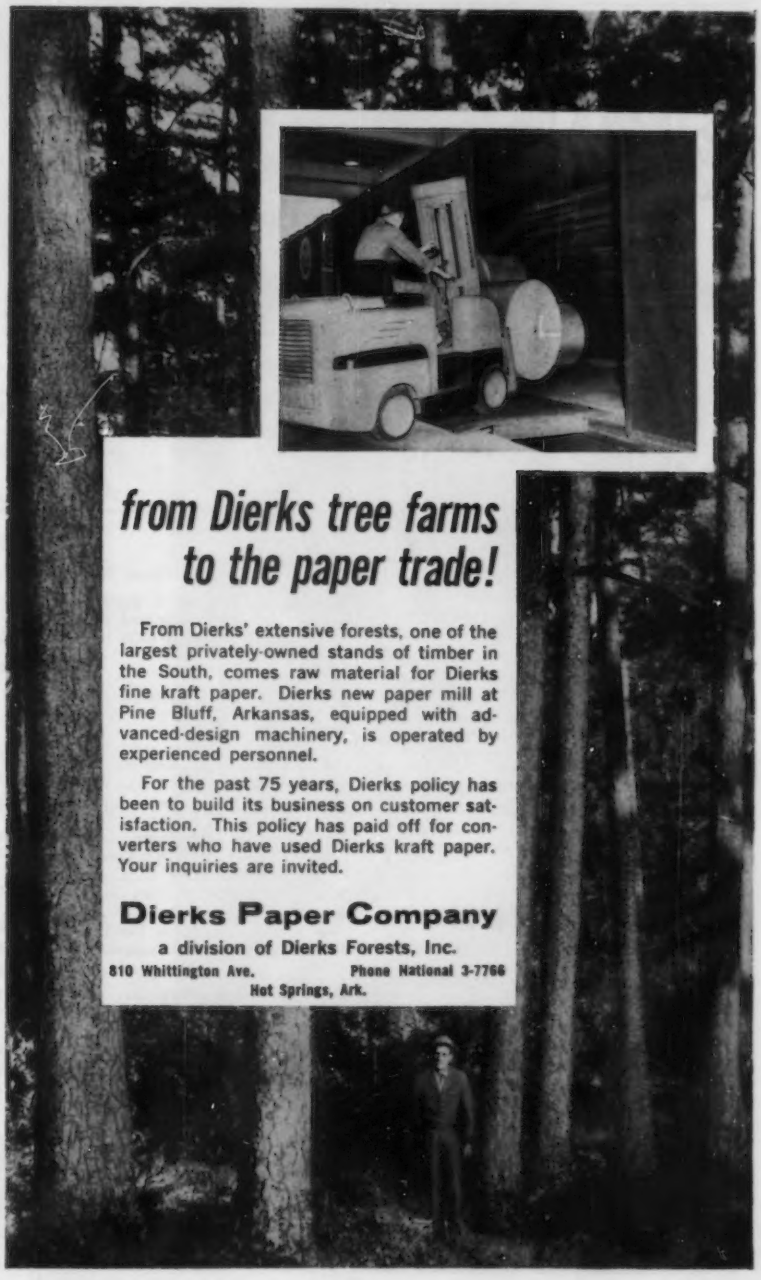
Thomas W. Estabrook, 78, former purchasing agent for Brown Co. of Berlin, N. H., and a prominent winter sports promoter, died September 15.

John William Berberich, 67, died September 20, at his home in Pittsburgh. He was a retired purchasing agent for the F. J. Kress Box Co., serving with the Pittsburgh office for 37 years.

Wells F. Anderson, 56, a director and senior vice president of operations of National Gypsum Co., Buffalo, N. Y., died September 21. He joined National Gypsum in 1951 as production manager and was made vice president of manufacturing in 1954. In 1956 he was made senior vice president of operations.

R. S. Daugherty, president, Shelby Salesbook Co., Shelby, Ohio, died September 14 in New York City. He was a former president of the Business Forms Institute, and was serving as a director of that organization.

Henry C. Segerstrom, 55 chairman of International Paper Co.'s packaging committee, died suddenly in New York on September 22. He joined International Paper in 1951 as sales promotion manager of the company's Container Division.


from Dierks tree farms to the paper trade!
From Dierks' extensive forests, one of the largest privately-owned stands of timber in the South, comes raw material for Dierks fine kraft paper. Dierks new paper mill at Pine Bluff, Arkansas, equipped with advanced-design machinery, is operated by experienced personnel.
For the past 75 years, Dierks policy has been to build its business on customer satisfaction. This policy has paid off for converters who have used Dierks kraft paper. Your inquiries are invited.
Dierks Paper Company
a division of Dierks Forests, Inc.
810 Whittington Ave.
Phone National 3-7766
Hot Springs, Ark.

CHAS. T. MAIN, INC.
ENGINEERS

Process Studies, Design, Specifications and Construction Supervision

PULP AND PAPER MILLS

Steam, Hydraulic and Electrical Engineering Reports, Consultation and Valuations

80 Federal Street Boston 10, Mass.

NEW MICROMETER
graduated in ONE-TENTH of ONE-THOUSANDTH of an inch

for fine calipering of Thin Materials

This precision instrument gives direct-reading thickness measurements of Papers, Tissues, Plastic Films, Foils . . . any sheet stock up to .050" thick. P.S.I. pressure meets ASTM and TAPPI Standards. Write for complete data and prices for this and other Cady Instruments.

Burst Testers • Micrometers
Basis Weight Scales

E. J. CADY & COMPANY
MANUFACTURERS
676 N. Harlem Av., River Forest, Ill.

Stadler Hurter
International Ltd.

Engineers • Designers • Consultants

Specializing since 1923 in all phases of design, modernization and expansion of pulp and paper mills from forest to finished product.

1501 ST. CATHERINE ST. W.
MONTREAL

NEW YORK • • • MEXICO CITY

PRICES OF FIBERS

MARKET WOOD PULP

FOURTH QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

	Delivered Basis U.S.	Delivered Basis Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	§$90.00/ —	§$80.00/ —	§$90.00/ —
Bleached Gw'd	$97.50/100.00	$97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	§157.90/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd. ..	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd..	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l.Gl'sn		134.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

NEW YORK RAG MARKET

PRICES NOMINAL

New Domestic Cotton Cuttings
Delivered Mill Basis

	Per 100 lbs.
No. 1 White Shirts	$13.50/$14.50
No. 1 Unblchd. Muslins	16.00/ 17.00
Blchd. & Unblchd. Underwears	15.00/ 16.00
No. 1 Light Cream Silesias	12.00/ 13.00
No. 1 Light Blue Overalls	7.00/ 8.00
Percales	6.00/ 6.50
No. 1 Light Prints	5.00/ 5.50
Suntan Khakis	5.75/ 6.75
Cottonades	3.00/ 3.50
No. 1 Washables	2.50/ 3.25

Old Domestic Cotton Rags
Delivered Mill Basis

	Per 100 lbs.
Mixed White	$3.25/$3.75
Cotton Pants & Overalls	2.25/ 2.75
Twos and Blues, Repacked	2.00/ 2.50
No. 2 Roofing	.65/ .80

COTTON LINTERS

Memphis Market
f.o.b. Oilmills

Week Ended Sept. 26	Per 100 lbs.
Grade 1 } n. a.	
2 }	
3 }	$8.50/ $7.25
4 }	6.75/ 6.25
5 } 1 cut—felting	5.75/ 5.25
6 }	4.75/ 4.25
7 }	4.00/ 3.50

* Based on 73% cellulose.

OLD ROPE & BAGGING

(Prices to Dealers, f.o.b. N.Y.)

	Per 100 lbs
New Burlap Cuts	$4.50/$5.50
Scrap Burlap	3.50/ 4.25
Australian Wool Pouches	5.00/ 5.50
Gunny	4.50/ 5.00
No. 1 Domestic Manila Rope	6.25/ 7.50
No. 1 Foreign Manila Rope	5.25/ 6.25
Domestic Sisal Strings	4.00/ 4.50

WASTE PAPER MARKET

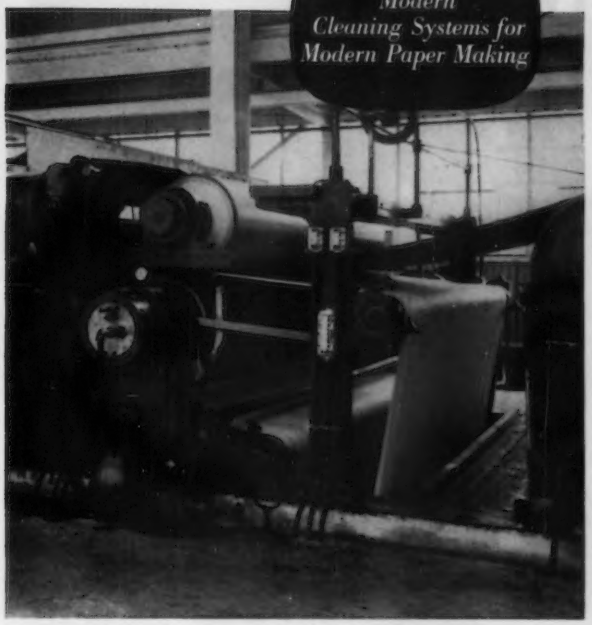
Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York Sept. 29	Boston Sept. 29	Chicago Sept. 29	Los Angeles Sept. 29
No. 1 Mixed Paper	$12.00/ 13.00	11.00/ 14.00	9.00/ —	14.00/ —
No. 1 News	18.00/ 19.00	17.00/ 18.00	18.00/ —	15.00/ —
Overissue News (Lg. size)	15.00/ 18.00	16.00/ 18.00	23.00/ —	19.00/ —
Mill Wrappers	15.00/ 19.00	16.00/ 18.00	10.00/ —	14.00/ —
Old Corrugated Containers	26.00/ 27.00	25.50/ 26.00	25.00/ —	25.00/ —
Super Resorted Kraft Paper ...	35.00/ 40.00	35.00/ 40.00	40.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts	37.50/ 40.00	40.00/ 42.50	42.50/ —	30.00/ 35.00
(Semi-chem. medium)	45.00/ 50.00	45.00/ 50.00	45.00/ 50.00	35.00/
New 100% Kraft Corr. Cuts ...	50.00/ 55.00	50.00/ 55.00	57.50/ —	45.00/ —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	50.00/ 55.00
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ 60.00
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	62.50/ —	55.00/ 60.00
No. 1 Groundwood Shvs.	25.00/ 30.00	22.50/ 27.50	18.00/ —	30.00/ 35.00
White Newsblanks	50.00/ 55.00	47.50/ 52.50	35.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	55.00/ —	— / —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	90.00/ 95.00	95.00/105.00	85.00/ —	85.00/ 90.00
Hd. White Env. Cuts	105.00/110.00	110.00/115.00	90.00/ —	100.00/110.00
Col. Tab. Cards	50.00/ 55.00	55.00/ 60.00	52.50/ —	27.50/ —
Manila Tab. Cards	75.00/ 80.00	72.50/ 80.00	70.00/ —	65.00/ —
No. 1 Col. Ledger	30.00/ 32.50	30.00/ 35.00	40.00/ —	22.00/ —
White Ledger	55.00/ 60.00	52.50/ 57.50	55.00/ —	50.00/ —
Mixed Book & Mag.†	18.00/ 20.00	15.00/ 18.00	12.00/ —	— / —
No. 1 Books‡	22.00/ 25.00	22.00/ 27.00	27.50/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

Modern Cleaning Systems for Modern Paper Making



Which method is best

for cleaning suction press rolls?

Method 1. Pump solution of Oakite Composition No. 19 to perforated pipe installed inside roll. Catch overflow in trough, return to heated solution tank, recirculate. Rinse. Cleans rolls and suction box simultaneously.

Method 2. Revolve roll at slowest speed through trough containing heated solution of Oakite Composition No. 19, for about four hours. Pressure-rinse.

Method 3. Brush solution of Oakite Compound No. 32 over roll. Keep surface wet until holes are completely opened. Or, use the mechanized methods outlined above with Oakite Compound No. 32. Pressure-rinse. For hard-water areas.

Each of these methods is "best" for many mills. Operating conditions, run of paper, type of pulp and hardness of water determines which is best *for them*. Which is best for *you?* Ask your local Oakite man, or write for Bulletin B-1324. Oakite Products, Inc., 48A Rector Street, New York 6, N. Y.

OAKITE *Modern Cleaning Systems*

Keep Downtime DOWN

In our 50th year

Export Division Cable Address: Oakite

Technical Service Representatives in Principal Cities of U. S. and Canada

NOW IS THE TIME TO *REPLACE* YOUR WORN STOCK VALVES WITH THE SPACE SAVING FABRI WAFER STOCK VALVE

FABRI-VALVE CO. OF AMERICA
2100 N. Albina
Portland, Oregon

The Papermaker specifies

BOLTON EMERSON
TRADE MARK

First Choice in REPLACEMENT TACKLE for all makes, sizes & types of Stock Treating Equipment

- Custom Heat Treated Steel
- Bolton Special Stainless Steel
- Hard Rolled Phosphor Bronze
- Specialized Metallurgy
- Laboratory Services
- Precision Craftsmanship

Contact: **John W. BOLTON & Sons, Inc.**
and
The EMERSON Manufacturing Co., Division
Lawrence, Massachusetts

W V Westvaco Quality Papers

Westvaco manufactures a wide range of high quality paper products—from fine printing to rugged converting papers. All of these papers are made from virgin chemical pulps to precise standards of uniformity and quality—Westvaco's guarantee of top performance.

Printing Papers . . . Coated and uncoated letterpress, coated and uncoated offset, and gravure.

Business Papers . . . Bond, mimeo, duplicator, ledger.

Bristols . . . Index, post card.

Converting Papers . . . Label, tablet, envelope, lining, tabulating card, coating raw stock.

Bleached Boards . . . Cup, coated and uncoated carton boards, converting and barrier boards, file folder and tag stock.

Kraft Papers . . . Bag, multi-wall sack, envelope, asphalting, gumming, interleaving, waxing.

Containerboard . . . Linerboard and corrugating medium.

Market Pulp . . . Bleached and unbleached sulphate.

West Virginia Pulp and Paper Company
230 Park Avenue, New York 17, N. Y.
35 East Wacker Dr., Chicago 1, Ill. • 503 Market St., San Francisco 5, Cal.

Jordan Shell and Plug Fillings
TRADE-MARK
POSITIVE
Reg. U. S. Pat. Off.
High Speed Disc Refiner

THE BAHR BROTHERS MFG. CO.
MARION, INDIANA, U. S. A.

PRACTICAL PAPER TECHNOLOGY
by William Bond Wheelwright

This book begins with a survey of "Progress in the Paper Industry" and ends with a list of books recommended for collateral reading. The intermediate chapters are entitled: "How to Judge Paper"; "Physical Aspects of Paper"; "Practical Manual and Visual Tests"; "Essential Facts About Papermaking"; "Coated, Glazed and Specialty Papers"; "Permanence of Paper"; "Paper Difficulties in Converting"; "Paper as a Medium for Printing"; "Letterpress Printing"; "Offset Lithography"; "Intaglio Processes."

Also a Supplement containing a Quiz Test on paper.

Practical Paper Technology. Price $1.75
Foreign Delivery—25c extra
Remittance with order

Lockwood Trade Journal Co., Inc.
49 WEST 45th ST. NEW YORK 36, N. Y.

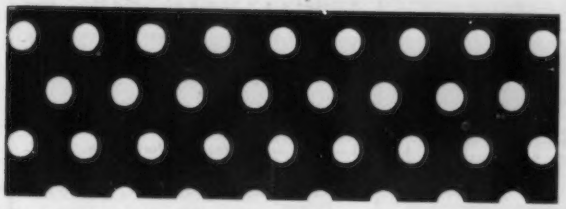
Supplying Your Requirements

CUT COST
USE PULP SUBSTITUTES

WASHINGTON D. C.
CAMDEN N. J.
NEW YORK N. Y.

THOMAS PAPER STOCK COMPANY
1500 No. Hooker Street • Chicago 22, Ill.

Hendrick makes Every Type of Screen for Paper and Pulp Mills



Need perforated metal screens? Hendrick has them in stainless steel, Monel, Inconel, Everdur, bronze, brass or copper.

What size screen do you need? What size perforation? Hendrick offers an exceptionally wide range of standard sizes and perforations, and gauges of metal. Hendrick also fabricates screens to specifications to meet special needs.

Need a fine slot combined with great strength? Use Hendrick Milled Slot Screens, particularly suitable for rotary screens. Slot widths range from .01″ to 3/16″.

Hendrick also makes stainless steel-clad tanks, special type vats, meter boxes, and perforated steel and stainless steel drum for filters. Write for detailed information.

Hendrick MANUFACTURING COMPANY

77 DUNDAFF STREET, CARBONDALE, PENNA.

Sales Offices in Principal Cities

Perforated Metal • Perforated Metal Screens • Wedge-Slot Screens • Wedge Wire Architectural Grilles • Mitco Open Steel Flooring-Shur-Site Treads • Armor-grids Hydro Debazers • Distillation Column Internals

For quick and easy pH Determination

CAMBRIDGE CONTINUOUS pH RECORDER

This instrument provides a continuous record of pH in aqueous solutions. Because of its accuracy and dependability, it is extensively used in paper making.

CAMBRIDGE DIRECT READING pH METER

This portable, indicating instrument is especially designed and ruggedly built for plant use. Operating directly from line power, it is so simple to use that unskilled workers can and will use it. Of particular value in processing Pulp, Applying Sizing and Reducing Corrosion of Pipes, Fittings and Equipment.

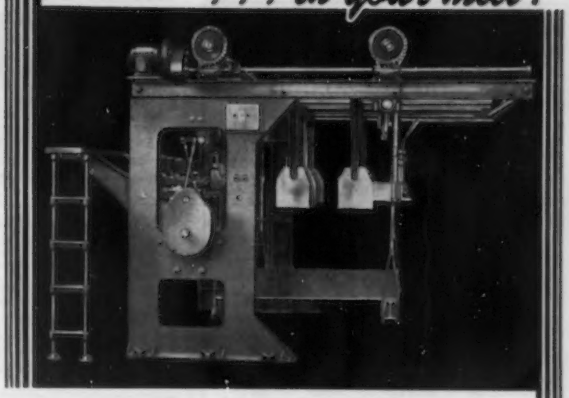
Send for Descriptive Literature

CAMBRIDGE INSTRUMENT CO., INC.

3507 Grand Central Terminal, New York 17, N. Y.

PIONEER MANUFACTURERS OF PRECISION INSTRUMENTS

You hold the "ACE" ..when you use... HAMBLET LAYBOYS ...in your mill!



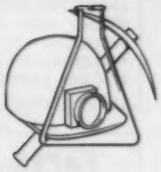
Single and Duplex Layboys for finishing room, board and pulp machine application. Supplied with tandem delivery for speeds to 300 feet per minute, overlapping delivery for speeds above 300 feet per minute. Handles tissue, blotting, envelope, and various weights of paper and board.

WRITE FOR CATALOG

HAMBLET MACHINE CO.

LAWRENCE, MASSACHUSETTS

TC TENNESSEE CORPORATION



LIQUID SULFUR DIOXIDE

HIGHEST QUALITY

SO_2

For Effective Removal of RESIDUAL CHLORINE

Tennessee's Liquid Sulfur Dioxide is a most efficient and economical antichlor. Removes residual chlorine and other materials which cause color reversion or yellowing with age. It also eliminates excessive residual chlorine in water.

Available in:

- CYLINDERS
- TON DRUMS
- TANK TRUCKS
- TANK CARS

We would like to consult with you on the possibilities of Tennessee's Liquid Sulfur Dioxide in your processing.

TENNESSEE TC CORPORATION

417-29 Grant Building, Atlanta, Georgia

PAPER TRADE JOURNAL CLEARING HOUSE

Help Wanted

PAPER MEN

$5,000 to $50,000

SALES • PRODUCTION • TECHNICAL

Finding and landing **THE ONE BEST JOB** requires sound analysis, careful planning, proper contacts and skillful negotiation. Paper men ourselves, and the only specialists in the world in our particular field, we assist responsible paper men to accelerate their careers by uncovering and developing **THE SPECIFIC SITUATION** that most exactly fits the needs of each individual we serve. If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

GEO. M. SUNDAY & ASSO.
PAPER PERSONNEL CONSULTANTS
6 E. Monroe Chicago ANdover 3-1970

PLANT ENGINEER

For new pulp-paper mill now under construction in Puerto Rico for a U.S.A. parent company.

Must be experienced in supervision of all mill maintenance, boiler plant operation and water treatment.

Send complete resume including education, experience and salary requirement to Box 329, Wall Street Post Office, New York 5, N. Y. 0-6

SUPERINTENDENT AND GENERAL MANAGER

Superintendent and general manager for paper board mill with technical as well as practical experience on cylinder machine producing chipboard. Capable of assuming full charge of mill. Salary commensurate with experience and ability to produce. Address Box 58-255 care Paper Trade Journal.

TECHNICAL AND RESEARCH DIRECTOR

Company manufacturing specialty papers for flexible packaging has an opening for a Technical & Research Director who will have complete charge of research, development and technical control. New England location.
Applicant should be a chemist preferably with advanced degree and experienced in research work in specialty papers.
Please send resume of experience to Box 58-254 care of Paper Trade Journal. 0-13

Help Wanted

BETTER POSITIONS

$6000 to $35,000. Want a substantial salary increase, more opportunity or different location? This national 47 year old service connects you with best openings. You pay us only nominal fee for negotiations; This we refund when employer pays placement fee. Present position protected. In complete confidence, write for particulars. R. W. Bixby, Inc., 563 Brisbane Bldg., Buffalo 3, N. Y. 0-6

MECHANICAL ENGINEER

Graduate Mechanical Engineer experienced in the operation of Fourdrinier paper machines, refining and related equipment for large expanding and progressive mill in Middle Atlantic States. Under 35 years of age. Good salary and excellent opportunity for advancement. Give detailed resume of experience. Send resume to
Director of Personnel
West Virginia Pulp & Paper Co.
Luke, Maryland 0-6

EXPERIENCED NEWSPRINT AND PAPER MILL SUPERINTENDENT FOR NEW MODERN PULP AND PAPER MILL IN CUBA. EQUIPPED WITH SPECIAL 158" RICE BARTON FOURDRINIER. COMPETENT GRADUATE OF RECOGNIZED UNIVERSITY PREFERRED BUT NOT NECESSARY. HOWEVER MUST BE THOROUGHLY EXPERIENCED AND COMPETENT NEWS PRINT PAPER MAKER—TOP SALARY WITH ONE MONTH PER YEAR PAID VACATION—ALL NET TAKE HOME PAY GUARANTEED. FREE FROM ALL U.S.A. OR CUBA INCOME TAX. TRAVELING EXPENSES SELF AND FAMILY—OTHER BENEFITS—GOOD REASONABLY PRICED FURNISHED AND UNFURNISHED HOMES. GOOD SCHOOLS—NEAR VARADERO BEAUTIFUL BEACH AND AMERICAN COLONY RESORT.

PLEASE FURNISH COMPLETE RESUME INCLUDING BIRTHPLACE—AGE—HEALTH RECORD—EDUCATION CHRONOLOGICAL LIST OF POSITIONS HELD WITH NAME OF COMPANY AND SALARY DESIRED. ALL REPLIES WILL BE KEPT STRICTLY CONFIDENTIAL. ADDRESS P.O. BOX 2929, CARDENAS, CUBA. 0-20

PAPER CONVERTING MACHINERY DESIGNER

Wanted by manufacturer of paper and film bag machinery and printing presses.

Located in pleasant New Jersey community.

Degree not necessary—only the ability and practical background for independent design of converting machinery.

Excellent opportunity for capable man. Salary open.

Please send resume of experience. Box 58-13 care Paper Trade Journal. TF

BEATER ROOM FOREMAN

To take complete charge of fibre preparation and color matching in a well known fine paper and bleached specialties mill. Middle Atlantic location. Send resume to Box 58-244 care Paper Trade Journal. TF

BARGAINS

IMMEDIATE DELIVERY

1—128" B & S 10-Roll Calender Stack. King Roll 24" Dia. Heavy box frames, full set of doctors. Excellent Condition.
1—86" Farrel 8-Roll Calender Stack. Anti-friction Bearings. Excellent Condition.
26—36" x 72" Complete Dryer Section, Stack, Drives, Etc.
10—48" x 150" Pusey & Jones Dryers.
1—84" Kamyr Machine, Complete. 75 ton per day output.
1—E. D. Jones Majestic Jordon No. A-482. New S.S. Fillings. Like New.
1—E. D. Jones Imperial Jordon, S.S. Fillings
1—Noble & Wood Mammoth Jr. Jordon, S.S. Fillings
1—Monarch Jordon, Model SP, Serial #21095, no fillings. Direct connected to a 75 H.P. G.E. 400 RPM Motor.
1—14 Plate Impco Flat Screen, Dunbar Drive, Bronze Vat. Direct Motor Drives.
1—A.P.P. Rotary Centrifugal Pulp Screen, 40" Dia. x 42" Face. Serial #1274227. Like new. Capable of 40 ton groundwood pulp per day.
1—Trimbey Senior Rotary Screen.
2—Impco Rotary Pulp Screens.
3—No. 3 Impco Rotary Knotter Screens. S.S. Plates.
1—110" Pusey & Jones 2-Drum Winder. A.F. Bearings.
1—Hudson Sharpe Toilet Tissue Converting Machine. Ser. #2123. 8 Spare Mandrel Bars.
1—42" Dia. x 110" Face Pope Type Reel. Excellent Condition.
1—25" Dia. x 156" Face Sandusky Suction Couch, Bearings & Stands.
1—22" Dia. x 138" Perforated Face Sandusky Suction Couch, Bearings & Stands.
1—10-Knife Carthage Chipper with Anti-friction Bearings.
1—54" Dia. x 48" Face Valley Iron Tub Beater.
1—Dilts 53" Dia. x 60" Face—2000 lb. Iron Tub Beater. S.S. Extractor Type Hood.
1—Seybold Knife Grinder. Size G. 84" Table. Serial #4X802.
1—Sandy Hill Sulphur Burner. Complete.
2—#2 Bird Screens with Copper Vats & S.S. Plates.
1—Tugboat Annie Pulper.
1—Worthington Air Compressor, Model STR2, 2-Stage, Air Cooled. 5 H.P.
1—C.P. 12 x 10 Air Compressor, 100# Pressure.
1—I.R. 7 x 7 Air Compressor, 100# Pressure.
1—No. 244 Mattison 18" Core Cutting Saw —5 H.P. 3450 RPM, 3/60/220-440 volt.
1—90 H.P. Terry Turbine, Type G-4000/1000 RPM. For Paper Machine Drive. Complete.
1—No. 2 Jones Pulper. A.F. Bearings. Spare Worm.
1—36" Putman H.D. Lathe—15' Centers.
1—24" x 6' L & S Geared Head, H.D. Machine Lathe. Taper Attachment, Hollow Spindle, Motorized.
1—350 H.P. G.E. 2200 Volt, 450 RPM Motor with G.E. 350 H.P. 2200 Volt, Type CR7065-M5 Controller.
1—100 H.P. U.S. 3/60/220-440 Volt, 900 RPM, D.P. Motor.
1—A.C. 75 H.P. 3/60/220-440 Volt, 720 RPM. T.E.F.C. Type ARZX Motor.
1—A.C. 60 H.P. 3/60/220-440 Volt, 720 RPM. T.E.F.C. Type ARZX Motor.
1—G.E. 100 H.P. MG Set, 250 Volt D.C.
1—250 H.P. Ingersoll Rand Diesel Engine Generator Set—G.E. Generator, 150 KW, 480 Volts, 720 RPM.

Save over 50% on your requirements for New Jordon Fillings. S.S., Bronze & Carbon Steel.

Gear Reducers, P.I.V. Drives, Generators, B.B. Pumps, Stock Pumps, Plunger Pumps, Etc.

1000 Electric Motors from ¼ H.P. to 600 H.P. in Stock.

The above is but a small part of the inventory we carry. We can furnish you with almost anything in the line of paper mill, electrical and machine shop equipment.

Write—Wire—Phone For Your Needs

RUDERMAN MACHINERY EXCHANGE
GOUVERNEUR, NEW YORK
Telephone 333-334 TF

ROSS PAPER MACHINERY CO.

USED PAPER MAKING AND CONVERTING MACHINERY

265 PASSAIC STREET · NEWARK 4, NEW JERSEY · Humboldt 2-2177

Cable Address "JACKROSS Newark, NJer"

QUALITY GUARANTEED MACHINERY ERECTED FOR YOUR INSPECTION

BEATERS—CAST IRON TUBS
1— 250 lb Valley Iron Works
1— 750 lb Valley Iron Works; 38″ x 48″ roll.
6—1500 lb Dilts; 50″ x 52″ bandless rolls
1—1500 lb Jones Bertram w/air control & washer; 72″ x 63″ roll.

BIRD DIRTECS
21—Bronze 6″ primaries & 2″ secondaries.

CALENDER STACKS
1— 82″ Lobdell 5 roll.
1— 86″ Lobdell 5 roll.
2—115″ B-C 7 roll.
1—124″ B-C 5 roll
1—124″ B-C 6 roll
1—128″ Downingtown 7 roll

CHIPPERS
1—96″ Murray 6 knife; A-F Brng.

CYLINDER MOLDS
2— 63″ face x 36″ dia w/rubber couches
1— 72″ face x 48″ dia
1— 73″ face x 48″ dia
1— 92″ face x 30″ dia
1—102″ face x 36″ dia
2—104″ face x 36″ dia
1—107″ face x 48″ dia; A-F Brng
2—111″ face x 36″ dia; A-F Brng
1—132″ face x 36″ dia; A-F Brng
1—132″ face x 42″ dia; A-F Brng
1—136″ face x 54″ dia; SS covering

CYLINDER WET ENDS
1— 99″ face x 48″ dia Downingtown single cylinder; 18″ dia couch
1—132″ face x 36″ dia Beloit seven cylinder; 18″ dia couches & four sets of presses

DRIVES
Various 2 hp thru 150 hp Reeves, PIV, etc.; open & enclosed; parallel & rt angle; horizontal & verticle

DRYERS—HYDROSTATICALLY TESTED
16″ Dia.: 2—46″ face w/Accessories.
18″ Dia.: 1—90″ face w/A-F Brng.
24″ Dia.: 39—46″ face; Chrome plated.
28″ Dia.:
3—70″ face w/gears & bearings
3—73″ face w/gears & bearings.
3—74″ face w/gears & bearings.
3—77″ face
2—84″ face.
2—160″ face w/rope carriers.
36″ Dia.:
1—42″ face.
2—44″ face.
2—46″ face.
8—70″ face w/gears & bearings.
11—72″ face w/gears & bearings.
1—74″ face Lukenweld w/A-F Brng.
3—74″ face w/gears & bearings.
4—75″ face w/gears & bearings.
10—76″ face w/gears & bearings.
1—77″ face w/gears & bearings.
1—78″ face w/gears & bearings.
20—78″ face; complete section.
2—80″ face.
5—84″ face.
1—92″ face.
1—104″ face.
1—138″ face.
10—160″ face.
42″ Dia.:
1—110″ face.
1—120″ face.
1—160″ face.
48″ Dia.:
58—46″ face; chrome plated.
1—52″ face w/gears & bearings.
1—82″ face w/gears & bearings.
5—90″ face w/gears & bearings.
10—100″ face w/bearings.
25—110″ face w/gears, frames & bearings.
12—123″ face w/gears, frames & bearings.
1—128″ face.
1—130″ face.
14—160″ face.
60″ Dia.:
2—113″ face.

EMBOSSERS
1—80″ Hudson Sharp; A-F Brng

EXTRACTOR ROLL
1—134″ face x 24″ dia Downingtown w/18″ dia rubber couch

FILTERS—STEEL VATS
1— 6′ face x 3′ dia Dorr-Oliver
1—10′ face x 8′ dia Dorr-Oliver continuous
3—14′ face x 8′ dia Oliver Kraft Stock Washers

FLAT SCREENS
1—10 Plate IMPCO w/dunbar drive & bronze vat
7—12 Plate Beloit w/witham fasteners
2—12 Plate IMPCO w/braemer controls

FOURDRINIER WET END
1—106″ Valley complete from head box through 22″ dia. suction couch.

JORDANS
1—Appleton #2 w/A-F Brng & SS filling
1—Smith & Winchester w/granite filling
1—Jones #4 Imperial w/A-F Brng & SS filling
2—Appleton #1; A-F Brng.

MOTORS—3 PH. 60 CYCLE
1—100 hp GE; 440 v; 695 rpm
3—100 hp GE; 440 v; 435 rpm
3—150 hp GE; 440 v; 435 rpm
1—300 hp West; 440 v; 388 rpm
1—350 hp GE; 2200 v; 720 rpm; Synch

PUMPS
Various open & inclosed impellor centrifugal

REELS
1— 86″ Downingtown two bowl
1— 94″ Downingtown two bowl; 60″ dia rolls
1—100″ Kohler automatic two arm unwind reel; 60″ dia rolls; new condition
1—150″ B & S pope type w/Reliance drive

REFINERS
2—#1 Claflin; A-F Brng
1—#1 Dilts Hydrafiner w/motor & S.S. filling
1—24″ Downingtown Weiner; new

ROLLS—PRESS, COUCH, CALENDER, ETC.
Various rolls of all types and sizes

ROLL GRINDERS—COMPLETE W/MOTORS
1—Farrel-Birmingham for rolls up to 240″ x 32″ w/crowning device

ROTARY SCREENS—BIRD
12—#3A, Model 100 w/SS or copper vats

SHEETERS—DOUBLE KNIFE
1—64″ Dillon
1—65″ Hamblet.
1—80″ B-C heavy duty board model
1—87″ Hamblet w/backstand & layboy
1—157″ Masson-Scott; like new

SHEETERS—SINGLE KNIFE
1—49″ Hamblet
2—53″ Hamblet
1— 54″ Hamblet w/layboy & backstand
1— 60″ Hamblet w/backstand
1—60″ Hamblet w/layboy & backstand
1— 64″ Hamblet w/overlapping layboy & backstand
1—65″ Hamblet w/backstand
1— 65″ Kidder Spot Sheeter w/elec. eye
1—71″ Hamblet
1—80″ Hamblet w/layboy & backstand; A-F Brng.
1—82″ Hamblet w/layboy & backstand
1—100″ Hamblet w/backstand
1—100″ Hamblet w/3 pile layboy
1—110″ Hamblet
1—124″ Cameron quick change slitter assembly

SLITTERS & WINDERS
3— 12″ Schultz Types AS & LDX
1— 30″ Cameron Model 6 w/motor; 24″ dia re.
1— 40″ Fales Model B; 18″ dia rewind
2— 42″ Essex duplex; 30″ dia rewind
3— 42″ Cameron Model 6; 24″ dia rewind
1— 42″ Cameron Model 40-1A; 22″ dia rewind
2—48″ Langston duplex; 24″ dia rewind
1—50″ Cameron Model 6; 24″ dia rewind
1— 52″ Cameron Model 24-2A; 18″ dia rewind
1— 60″ Hudson-Sharp; plastic coated paper
1— 60″ Langston; shear cut; 30″ dia rewind
1— 60″ Kidder Model SH; 40″ dia rewind
3— 62″ Cameron Model 6; 24″ dia rewind
2— 62″ Cameron Model 9-5; 30″ dia rewind
1—62″ Cameron Model 8; heavy duty
1—62″ Cameron Model 6; 30″ dia rewind
1—62″ Cameron Model 6; 36″ dia rewind
1— 62″ Cameron Model 6; new 1951; 24″ dia re.
1— 64″ Cameron Model 8; 36″ dia rewind
1—70″ Center Winder w/variable speed motor.
1— 72″ Cameron Model 26-3A duplex.
1— 72″ Beloit shear cut; 40″ dia rewind
1— 72″ Hudson-Sharp high speed automatic
1—82″ Cameron Model 10-11A; A-F Brng; water cooled brake; 40″ dia rewind
1— 84″ Langston shear cut; 50″ dia rewind
1—110″ Cameron Model 18; 60″ dia rewind
1—124″ Cameron quick change slitter assembly
1—148″ Langston shear cut; A-F Brng; 60″ dia rewind
1—194″ Cameron Model 19; A-F Brng

STEAM TURBINE—PAPER MACHINE DRIVE
1—100 hp DeLaval w/reducer

SUCTION COUCH ROLLS
1—116″ drilled face x 18″ dia Sandusky
1—122″ drilled face x 18″ dia Sandusky
1—122″ drilled face x 25″ dia Sandusky
1—135″ drilled face x 22″ dia Sandusky
1—192″ drilled face x 30″ dia Millspaugh

SUCTION PRESS ROLLS
1— 90″ drilled face x 18″ dia Sandusky
1— 98″ drilled face x 18″ dia Sandusky
1—166″ drilled face x 19″ dia Millspaugh; used 2 mos; A.-F. Brng; rubber covered.
1—194″ drilled face x 30″ dia Millspaugh

SUPERCALENDERS
1—63″ Norwood 7 roll; A-F Brng.
1—65″ Norwood 7 roll; A-F Brng.
1—92″ Norwood 7 roll w/drive

THICKENERS
1— 92″ face x 36″ dia cyl w/rubber couch; less vat
6—132″ face x 36″ dia cyl w/16″ dia rubber couches; A-F Brng
1—132″ face x 42″ dia cyl w/16″ dia rubber couch; A-F Brng

TRIMMERS—POWER BACK GAUGES
1—56″ Seybold Precision w/auto. spacer
1—74″ Seybold 20th Century
1—84″ Seybold 122
1—84″ Seybold Dayton w/motor
1—94″ Seybold Precision w/motor & air table

UNWIND STANDS
1—68″ Cameron Constant Tension
1—68″ Johnstone Constant Tension

VACUUM PUMPS
2—H-4 Nash w/10 hp motors
1—L-4 Nash
1—L-5 Nash
1—H-8 Nash
1—#3 Nash w/25 hp motor
4—#2, #3 & #6 Nash Hytors
1—7 x 10 Connersville

VOITH INLETS
2— 86″ Valley Iron Works
1—108″ Valley Iron Works.
1—144″ B & S high speed w/headbox; SS clad
1—156″ New Valley w/36″ headbox; monel lined

YANKEE DRYERS
1—132″ face x 10′ dia Beloit; 35 psi
1—140″ face x 12′ dia Beloit; 75 psi

WAXERS & COATERS
1—54″ Mayer w/motor
2—62″ Mayer w/motors
1—65″ Mayer w/drive
1—76″ Mayer w/Dowtherm system

FOR SALE

BEATERS

2 lb. Valley Iron Works laboratory beater
48" x 44" Dayton, new 1947, hollow midfeather, cast iron tub high speed type
48" x 40" Noble & Wood, cast iron tub
65" x 54" Jones, 68 stainless steel bars, with lighter equipment, dump valve

DRYERS

7—60" x 175"
5—Rice Barton 60" x 164", (2 new 1947)
12—48" x 160" Pusey & Jones with bearings
9—48" x 152" Rice Barton
8—48" x 148" Pusey & Jones
4—48" x 144" Pusey & Jones
4—42" x 140" Beloit
1—48" x 136"
2—36" x 136" Horne
13—Black & Clawson 48 x 134", stamped sixty lb.
1—Black & Clawson 42 x 134"
1—48" x 132" Horne
19—Downingtown 48 x 130", last used sixty lb. pressure
1—Black & Clawson 42 x 130"
1—Rice Barton 48 x 124"
1—Pusey & Jones 48" x 114"
1—Downingtown 42 x 114"
1—48 x 106"
4—42" x 102"
1—48 x 98"
1—48 x 89"
26—36 x 88" Black & Clawson, with frames, gears, bearings
4—42 x 86" Black & Clawson
104—Moore & White, double deck, 36 x 84" with frames, gears, bearings
15—36" x 82" Downingtown with frames, gears, bearings
1—48 x 78"
12—36 x 76"
4—40 x 76"
4—42 x 73"
4—36 x 64"
2—48 x 56"
2—45 x 48"
40—48 x 46"
16—36 x 44"
9—36 x 40" with frames, gears, bearings

JORDANS

Jones Imperial, anti friction, new 3/16" stainless steel filling
Number 1 Emerson, anti friction, 3/16" bronze filling
Number 1 Emerson, plain bearing, ring type filling
Number 4 Emerson Junior, anti friction, ½" bars
Noble & Wood Unifiner or Mammoth Junior, anti friction, new 1951
Horne Pony Jordan, new Bar type filling, 100 HP 440 volt motor
Jolly Pony Jordan, stainless steel filling
Noble & Wood Mammoth D
No. 2 Appleton
Jones Majestic
36—2 Sprout Waldron refiner, 325 HP motor

FOURDRINIERS

228" Pusey & Jones, 80 ft. wire.
210" Pusey & Jones, 89 ft. 9" wire, removable. Pressure head box. Stainless steel rails, cross ties. Most of parts new 1953.
200" Beloit, wire 65 ft. 6½", removable. 30" Beloit couch.
2—170" Rice Barton, 30" couch, rebuilt 1951.
145" Rice Barton, oscillator for boxes. Stretch and guide, new 1950. New shell for 22" couch, never used.
96" x 64 ft. 10" Valley slice, 25" Downingtown suction couch.

PAPER MACHINES

120" Fourdrinier, 2 suction presses, 21—48" dryers, calender, reel, winder. Set up as last operated. Trim 112"
102" Yankee with 10 ft. dia. dryer, new 1952, ASME tested 160 lbs. Fourdrinier, suction press, calender, reel, Jordan, Selectifier screen
102" x 28 ft. wire Fourdrinier tissue machine, trim 101". Speed 365 FPM. Production about 4 tons per day toilet tissue facial grade. 6 ft. Yankee dryer, calender, winder, L 8 Nash vacuum pump.
2—102" Fourdrinier machines, trim 88", three plain presses, 48" dryers, 2 calenders, reel, type 18 Cameron winder.
Four cylinder 81" trim board machine, moulds 36 x 93", 32—36" x 87" dryers, 2 calenders, reel, winder, duplex cutter, drives, Jordans, screens.
Six cylinder 80" trim machine, moulds 48" x 96", two primary presses, anti friction. 3 main presses, anti friction. 38 dryers 48" x 86", triple deck. 2 calenders, Duplex cutter, 2 drum winder, drive, pumps.
72" trim Fourdrinier machine with wire 82" x 54 ft. 10". 18" suction couch, 3 plain presses. Second press reverse. 18 dryers 48 x 76", double deck with top and bottom felt. Size press. 6 dryers 48" x 76". Top and bottom felt equipment. 2 calenders, reel, winder, drives, prime mover, pumps, as last operated including four Vortraps, Jones Imperial Jordan, 3A Bird screen, Number 5 Bird Saveall, L 7 Nash pump, last producing about 16 to 18 tons of 20-60 lb. Bond. Machine can be inspected while operating.
72" trim Yankee Fourdrinier machine, speed 350-400 FPM, production four tons per 24 hours, 24 x 36, 10 lb./480 tissue. Fourdrinier Rice Barton, 5 ft. dryer, drum reel, Cameron slitter and winder, hoist, pumps, midget Jordan.
65" x 32 ft. 11" Fourdrinier paper machine, last producing 6 to 10 tons 80 lb. Bond, including Pony Jordan, suction couch, 3 presses, second press reverse. 1st dryer section 30 dryers 28" diameter, top and bottom felt equipment. Size press. 2nd dryer section 24" lead dryer, 6—36" x 62" dryers, top and bottom felt equipment. 5 roll calender, reel, Moore & White cutter, prime mover, Pony Jordan, 2 L-6 Nash pumps and other equipment as last operated. Machine can be inspected while operating.

WINDERS

30" Model B Fales slitter, new 1947.
42" Cameron, type 6
48" Kidder, Merchants Model, shear cut, new 1948
2—52" type 26 3-A Cameron duplex
48" Langston sheet type heavy duty slitter and winder
2—52" type 9 Camerons, water cooled unwind spring operated tension roll, ten sets slitters, rebuilt
Langston 60" shear cut slitter
82" Langston Style B, drums 7½" x 82", rewind 36"
84" Pusey & Jones two drum, five sets shear cut slitters. Take roll 84", rewind 42" diameter.
98" face Pusey & Jones two drum.
108" type 18 Cameron, rewind 60", anti friction bearings, roll ejector, 40 HP 440 volt wound rotor motor
116" Warren winder with slitter attachment
Beloit two drum winder, drums 15" x 128", anti friction bearing, shear cut, individual drum type drive.
132" Dominion, new 1947, rewind 40". 50 HP wound rotor motor.
146" Langston type DA, anti friction bearings, rewind 40"
154" Rice Barton two drum shear cut, drums 16"
158" Moore & White four drum, 15" dia. drums, rewind 40", shear cut slitter
160" type 18 Cameron, rewind 42". Air operated slitters. Water cooled unwind, constant tension unit.
186" type 19 Cameron
220" type 20 Cameron

TRIMMERS

84" Seybold precision, new knife
84" 20th Century, 10 Hp motor, rebuilt
1—64" 20th Century
2—64" Seybold Dayton
60" Sheridan
52" Lawson, new 1952

SHEET CUTTERS

140" Hamblet duplex Model 29, anti friction bearings, with backstand, new 1937
140" Hamblet single
108" Moore & White cutter and layboy, rebuilt
90" Hamblet duplex with layboy and 10 roll backstand
88" Hamblet
88" Moore & White with layboy
76" Moore & White
64" Moore & White
56" Moore & White with layboy
32" Hamblet with four roll backstand, lay off table

CALENDERS

5 roll 144" box frame, water cooled bearings
2—126" 7 roll, box frame, water cooled bearings
1—106" 9 roll Lobdell, water cooled bearings, box frame
2—9 roll Sandy Hill 106", spare set of rolls, spare bearings
5 roll 100", rolls about 15" diameter
8 roll 92"
4 roll 76"
6 roll 72"

SUPERCALENDERS

145" anti friction 9 Roll MG set available
2—100" 9 Roll Holyoke 26" Bot. Roll
1—9 Roll 66"
1—8 Roll 40"

SCREENS (FLAT)

6 Impco 14 plate, bronze vat
20 Impco 12 plate, bronze vat

SCREENS (ROTARY)

2—3A Bird, new 1950, bronze plates cut .016", semi non ferrous
2—3A Bird, totally non ferrous, bronze plates cut .016", 440 volt motor.
Jones Leith Walk screens, cut .012" plates, copper lined vat, spare parts
2—2A Bird, copper vat, 100" plates
2—2A Bird, 70", bronze plates, cut .016", totally non ferrous
1—3A Bird, 70"

FRANK H. DAVIS COMPANY INC.

175 RICHDALE AVENUE, CAMBRIDGE 40, MASSACHUSETTS
TELEPHONE—TROWBRIDGE 6-0365

0-8

Help Wanted

TECHNICAL SALESMAN WANTED

Good opportunity for experienced salesman of chemical auxiliary products in the paper field. To cover southern states. Send complete details of experience and education to Box 58-227 care of Paper Trade Journal.

O-6

PULP & PAPER MILL EQUIPMENT

Training, New York, locate in Middle West as exclusive representative. Age 30-40. Send complete resume including salary. Box 58-253 care Paper Trade Journal.

O-6

MASTER MECHANIC WANTED

MUST BE EXPERIENCED ON MODERN HIGH SPEED CYLINDER AND FOURDRINIER PAPER MACHINES. GOOD SALARY AND STEADY WORK.

ALSO HOSPITALIZATION PLAN.
EXCELLENT WORKING CONDITIONS.

Address Box 58-245 care Paper Trade Journal.

O-13

Situations Wanted

ENGINEER

M.E. with very extensive experience covering many years in the pulp, paper and board industry as Plant Engineer, Chief Engineer and general production supervision. Qualified for engineering, construction and maintenance supervision. Renovation and modernization. Mills and power plants. Address Box 58-230 care Paper Trade Journal. O-6

Superintendent or Tour Boss

Age 48, good health, desires change. 20 years experience on high speed Fourdrinier Yankee machines making toilet tissue, facial and towels. Also some experience on board and condenser paper. Familiar with color and de-inking. Address Box 58-247 care Paper Trade Journal. O-6

CHEMICAL ENGINEER

Seven years experience in pulp and paper and related chemical industry. Capable of assuming full responsibility of Canadian operations of company wishing to expand into Canada.

Canadian citizen living in U.S.A. Address Box 58-251 care Paper Trade Journal.

O-6

SALES ENGINEER — Dynamic personality. Extensive experience Paper Converting Machinery design development background. N.Y.C. & Metropolitan area. Excellent top management relationships. Address Box 58-250 care Paper Trade Journal. O-6

For Sale

FOR SALE

74" Single Hamblet Rotary Sheeter with layboy, slitting attachment, 14 double deck roll back stands. AC-DC variable speed motor drive. For further particulars address Box 58-256 care Paper Trade Journal.

O-6

FOR SALE

SURPLUS PAPER MILL EQUIPMENT

Dozens of pieces of paper mill equipment — chippers, rolls, head boxes, pumps, etc. Some new, some used but with a lot of good service still ahead of them. For complete listing and full details contact Purchasing Department, Section C, Box 570, Savannah, Georgia.

O-6

FOR SALE

158 foot Jeffrey Paper Roll Conveyor—rails 20½", pitch 25° with 2-15 HP AC motors and reversable switch
54" Hamblet 2 knife sheeter w/layboy
65" Seybold Power Cutter
74" Seybold 10Z Power Cutter

Apex Ptg. Machy. Co., Inc.
210 Elizabeth St., N.Y.C. 12 Worth-6-0070

O-6

Sales Representation

PULP SALES TO ITALY

The Director of an Italian firm of international reputation and with associated companies in the States will arrive in New York on October 10th and is interested to take over the sales agency for Italy of a USA or Canadian important mill. Excellent connections exist with all Italian paper mills.

Please write Box 58-252 care Paper Trade Journal.

O-6

A small Classified ad often brings big results

GOVERNMENT BIDS

PROPOSALS

for furnishing

PAPER FOR THE U. S. GOVERNMENT PRINTING OFFICE

SEALED PROPOSALS will be received until 10 a. m., E. D. S. T., October 13, 1958, in the room of the Joint Committee on Printing, in the Capitol, Washington, D. C., for furnishing the paper for the public printing and binding and blank paper ordered for the Government departments and establishments during the term of 3 months beginning November 1, 1958, deliveries to be f. o. b. Government Printing Office Warehouse, or warehouse siding, Washington, D. C.

The proposals will be opened in the presence of and the award of contracts made by the Joint Committee on Printing to the lowest and best bidders for the interest of the Government whose bids are in conformity with the requirements of the proposal. The committee reserves the right to reject any or all bids, or to accept any bid or any part and reject the other part if, in its opinion, such action would be in the interest of the Government.

Blank proposals containing the instructions, schedule, and specifications, accompanied by standard samples, may be obtained by addressing Raymond Blattenberger, Public Printer, Washington 25, D.C.

Contracts will be entered into for supplying the quantities required, whether more or less than the estimates, as provided in paragraph 26 of the Instructions.

ADVERTISEMENT

The approximate estimated quantities set forth in detail in the schedule comprise:

1,990,000 pounds machine-finish book paper; 25,000 pounds machine-finish book end paper; 400,000 pounds special english-finish book paper; 90,000 pounds english-finish book paper; 9,286,400 pounds offset book paper; 230,000 pounds antique book paper; 130,000 pounds supercalendered book paper; 1,622,000 pounds coated book paper; 697,500 pounds mimeograph paper; 398,000 pounds duplicator copy paper; 1,344,000 pounds writing paper; 7,124,000 pounds writing paper for offset printing; 2,500 pounds 100% fine writing paper; 805,200 pounds map paper; 346,000 pounds manifold paper; 310,000 pounds bond paper; 1,585,200 pounds bond paper for offset printing; 7,500 pounds 100% bond paper for offset printing; 40,000 pounds translucent bond paper for offset printing; 830,000 pounds ledger paper for offset printing; 29,000 pounds 100% ledger paper for offset printing; 1,130,000 pounds index paper for offset printing; 320,000 pounds cover paper for offset printing; 5,000 sheets cloth-lined cover paper; 25,000 pounds manila paper; 211,000 pounds kraft paper; 410,000 sheets gummed paper; 35,000 pounds blotting paper; 9,000 pounds oiled manila tympan paper; 65,000 pounds manila tagboard; 10,000 pounds manila cardboard; 70,000 sheets railroad board; 40,000 pounds wood cardboard; 90,000 pounds tan board; 10,000 pounds jute tag board; 3,660,000 pounds postal card paper; 10,000 pounds folding bristol; 55,000 sheets pressboard; 215,000 pounds newsboard;

215,000 pounds binder's board
pounds chestnut cover board.

By direction of the Joint Committee on Printing.

RAYMOND BLATTENBERGER,
Public Printer.

WASHINGTON, D. C.
September 22, 1958.

O-6

Buy U. S. Savings Bonds

A COMPLETE LINE OF AUTOMATIC WEB GUIDING EQUIPMENT

WRITE FOR CATALOG:

• FIFE • MANUFACTURING INCORPORATED Company

P. O. BOX 9815 OKLAHOMA CITY 18, OKLAHOMA

THE MOORE AND WHITE CO.

CUSTOM BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD

330 East Hunting Park Ave.
Philadelphia 24,
Pennsylvania

M & W

Represented on West Coast by Stephen Thurlow Co., 1731 First Avenue, South Seattle 4, Washington

ADVERTISERS

Adell Chemical Co. ..... —
Albany Felt Co. ..... —
Allied Chemical Corp. Nitrogen Div. ..... —
Allis-Chalmers Mfg. Co. 31
Aluminum Co. of America .... —
American Bitumuls & Asphalt Co. ..... —
American Bridge Div., U. S. Steel Corp. ..... —
American Cyanamid Co., Paper Chemical Dept. ..... —
American Cyanamid Co., Dyes Dept. ..... —
American Cyanamid Co., Organic Chem. Div. ..... —
American Cyanamid Co., Pigments Dept. 15
American Paper & Pulp Co. Inc. 36
American Potash & Chem. Corp. ..... —
American Steel & Wire Co. .. —
Ames Company ..... —
Anglo Paper Products Ltd. .. —
Annin Company ..... —
Antara Chemicals, Sales Div. Gen Aniline & Film Corp. .. —
Apmew, Inc. 60
Appleton Machine Co., The .....Back Cover
Appleton Wire Works ..... —
Appleton Wood Products Co... —
Armco Drainage & Metal Products ..... —
Armco Steel Corp. ..... —
Armstrong Machine Works .... —
Arnold Hoffman & Co. ..... —
Asten-Hill Mfg. Co. ..... —
Aurora Pump Div., N. Y. Air Brake ..... —

Babcock & Wilcox Co. .. .... —
Bahr Bros. Mfg. Co. 64
Bailey Meter Co. 6
Bauer Bros. Co. ..... —
Beloit Iron Works Co. ....44 & 45
Bird Machine Co. 29
Bixby, R. W., Inc. 66
Black-Clawson Co. 19
Blaw-Knox Company ..... —
Bolton & Sons 64
Borden Co. ..... —
Bowsher Co., N. P. 69
Brandon Sales, Inc. ..... —
Broughton, A. E. & Co. ..... —
Brown Company ..... —
Buckeye Cellulose Corp. ..... —
Buffalo Forge Co. ..... —
Buffalo Pumps, Inc. 9

Cady, E. L., & Co. 62
Calgon Company ..... —
Cambridge Instrument Co. 65
Cameron Machine Co. ..... —
Capitol Products Corp., Read Standard Div. ..... —
Carthage Machine Co. ..... —
Central National Corp. Front Cover
Chicago Bridge & Iron Co. .. —
Ciba Company ..... —
Cities Service Oil Co. ..... —
Clark-Aiken Company ..... —
Classified Advertising 66
Clearing House 66
Cleveland Crane & Engrg. Co. —
Colonial Plastics Mfg. Co. .... —
Columbia-Geneva Steel Div., U. S. Steel Corp. ..... —
Columbia-Southern Chem. Corp. Sub. of Pittsburgh Plate Glass Co. ..... —
Combustion Engrg. Co. ..... —
Conveyair Sales Ltd. ..... —
Corn Products Sales Co. ..... —
Crane Co. ..... —

Davis, Frank H., Co., Inc. ... 68
DeZurik Corporation ..... —
Dewey & Almy Chem. Co. ... —
Diamond Alkali Co. ..... —
Dicalite Div., Great Lakes Carbon Corp. ..... —
Dierks Paper Co. 61
Dilts Machine Works 19
Dixie Bearings Div. of Bearings, Inc. ..... —
Dodge Mfg. Co. 18
Dorr-Oliver ..... —
Dow Chemical Co. .....32 & 33
Dowell, Inc. ..... —
Draper Bros. Co. ..... —
Dryden Paper Co., Ltd. .... —
du Pont, E. I., de Nemours & Co., Dyestuffs Dept. ..... —
du Pont. E. I., de Nemours & Co., Electrochemical Dept. .. —
du Pont. E. I., de Nemours & Co., Grasselli Dept. 39

Eaton Manufacturing Co. ... —
Ebasco Services, Inc. ..... —
Egan Frank W., & Co. ..... —
Elixman Paper Core Co. .... —
Elliott Company ..... —
English China Clays Sales Corp. ..... —

FabriValve Company 63
Fairbanks Morse & Co. 24
Falk Corporation ..... —
Farrel-Birmingham Co., Inc... —
Fibrecast Company ..... —
Fife Manufacturing Co. 69
Fitchburg Screen Plate Co. ... —
Foxboro Co. ..... —
Fraser Companies, Ltd. ..... —
Frederick Iron & Steel Co. .. —

Garlock Packing Co. 35
Gaspesia Sulphite Co. Ltd. ... —
Gates Rubber Company ..... —
Geigy Chemicals Corp., Geigy Dyestuffs Div. ..... —
General Dyestuffs Co. ..... —
General Electric Co. ..... —
General Tire & Rubber Co. .. —
Gibbs-Brower Co. ..... —
Gilbert & Nash Co. ..... —
Glidden Company ..... —
Goodrich Industrial Prod. Co. 3
Gottesman & Co. ..Front Cover
Grace, W. R., & Co., Dewey & Almy Chem. Div. ..... —
Graton & Knight Co. ..... —
Grauer Tank & Mfg. Co. ..... —
Grinnell Co., The ..... —
Gruendler Crusher & Pulv. Co. —
Gulf Oil Corporation .....10 & 11
Gurley W. & L. E. ..... —

Hagan Chemicals & Controls Corp. ..... —
Hamblet Machine Co. 65
Harbison-Walker Refractories.. —
Hendrick Mfg. Co. 65
Hercules Powder Co. ..... —
Hills-McCanna Co. ..... —
Hooker Electrochemical Co. ... —
Huber, J. M., Corp. 53
Hudson Sharp Machine Co. ... —
Hungerford & Terry, Inc. .... —
Huyck, F. C. & Sons ..... —

Improved Machinery, Inc. 7
International Paper Co. ..... —

Jenkins Brothers ..... —
Johns-Manville Corp. ..... —
Johnson Corp., The ..... —
Johnson Alvin H., & Co. .... —
Jones, E. D., & Sons Co. 22
Jones & Laughlin Steel Corp. —

Kalamazoo Tank & Silo Co. .. —
Kidder Press Co. ..... —
Knox Woolen Co. ..... —
Koppers Company ..... —

Langston, Samuel M., Co. .. —
Link Belt Co. 13
Lockport Felt Co. ..... —
Lockwood Greene Engineers .. —
Lodding Engineering Co. ..... —
L. O. F. Glass Fibers Co. .... —
Lukens Steel Co. ..... —
Lunkenheimer Co. ..... —
Lyddon & Co. 20

Magnus Metal Corp. ..... —
Main, Charles T., Inc. 62
Manchester Machine Co. 16
Marathon—A division of American Can ..... —
Marathon Electric Mfg. Corp. —
Mead Pulp Sales, Inc. ..... —
Meincke, A. M. & Son ..... —
Merrick Scale Co. ..... —
Minneapolis-Honeywell ..... —
Mixing Equipment Co. ..... —
Montaque Machine Co. ..... —
Moore & White Co. 69
Morden Machines Co. ..... —
Mt. Hope Mchy. Co. ..... —
Mt. Vernon Mills Inc. ..... —
Murray, D. J., Mfg. Co. .... —

Nash Engineering Co. ..... —
National Lead Co., Magnus Metal Div. ..... —
National Starch Products, Inc. ..... —
National Tube Div., U. S. Steel Corp. 12
Nelson Company ..... —
New Jersey Zinc Co. ..... —
Nichols Eng. & Research Corp. —
Noble & Wood Mch. Co. ..... —
Nopco Chemical Co. ..... —
Northeastern Paper Sales ..... —
Norton Co. ..... —

Oakite Products Inc. 63
Ohio Injector Co. ..... —
Olin Mathieson Chem. Corp. .. —
Osborne Paper Mill Equip. Corp. ..... —

Paper Converting Machine Co. —
Parsons & Whittemore 20
Patton Mfg. Co. ..... —
Perkins, B. F., & Sons, Inc. .. —
Perkins Goodwin Co. ..... —
Personnel Service Associates .. —
Pioneer Paper Stock Co. ..... —
Pittsburgh Piping & Equip. .. —
Poirier Control Co. ..... —
Potdevin Machine Co. ..... —
Powell Valves ..... —
Price & Pierce, Ltd. ..... —

Railway Supply & Mfg. Co. .. —
Raymond, Chas. P. Service Inc. ..... —
Read Standard Div. of Capitol Products Corp. ..... —
Ready Power Co. ..... —
Record Fdy. & Mch. Co. .... —
Red Ray Mfg. Co. ..... —
Rice Barton Corp. ..... —
Riedel, Gus & Son ..... —
Riegel Paper Corp. ..... —
Rohm & Haas Co. ..... —
Ronningen-Petter Co. ..... —
Roosevelt Paper Co. ..... —
Roots-Connersville Blower Div. Dresser Industries ..... —
Ross, J. J., Co. ..... —
Ross-Midwest Fulton Co. .... —
Ross Paper Machinery Co. ... 67
Ruderman Mach. Exchange .. 66
Rust Engineering Co. ..... —
Ryerson, Jos. T., & Son ..... —

Sandoz Inc. ..... —
Sandy Hill Iron & Brass Works 14
Scapa Dyers Inc. ..... —
Seaboard Air Line R. R. Co... —
Shartle Div., Black-Clawson Co. 19
Shawinigan Resins Corp. .... —
Sheffield Corp. ..... —
Shell Chemical Corp. ..Cover 3
Shuler & Benninghofen 38
Signode Steel Strapping Co. .. —
Simplex Wire & Cable Co. .... —
Sinclair Company ..... —
Sirrine, J. E., Co. ..... —
Smidth, F. L., & Co. ..... —
Soderhamn Mch. Mfg. Co. .... —
Sonoco Products Co. ..... —
Southworth Machine Co. ..... —
Spraying Systems Co. ..... —
Sprout Waldron & Co. 21
Stadler Hurter & Co. 62
Staley Mfg. Company ..... —
Stanley Steel Strapping ..... —
Stebbins Engrg., Co. 8
Stein, Hall & Co. ..... —
Stone & Webster Engrg. Corp. 37
Stowe-Woodward, Inc. ..... —
St. Regis Paper Co. ..... —
Sunday, Geo. M. Assoc. 66
Swenson Evaporator Co. 7

Taylor Instrument Cos. ..... —
Taylor Stiles & Co. ..... —
Tennessee Coal & Iron Co. ... —
Tennessee Corp. 65
Testing Machines ..... —
Texas Co. ..... —
Texas Gulf Sulphur Co. 2
Thiele Kaolin Co. ..... —
Thomas Paper Stock Co. 64
Thurso Pulp & Paper Co. .... —
Titanium Pigment Corp. .... —
Toledo Scale Corp. 59
Torrington Co. ..... —
Towmotor Corp. ..... —
Trent Tube Co. ..... —
Turner Halsey Co. ..... —

United Carbon Co. Inc. ..... —
United Engrg. & Fdy. Co. ... —
U. S. Industrial Chem. Co. .... Div. of National Distillers & Chem. Corp. ..... —
U. S. Rubber Company ..... —
United States Steel Export ... —
United States Steel Supply Co. —
U. S. Steel Corp. 12

Valley Iron Works ..... —
Vanderbilt, R. T., Co. ..... —
Virginia Smelting Co. ..... —

Waldron, John Corp. 4
Walworth Co. ..... —
West End Chemical Div. Stauffer Chem. Co. ..... —
Westvaco Chlor-Alkali Div., Food Mchy. & Chem. Corp. —
West Virginia Pulp & Paper Co. 64
Weyerhaeuser Timber Co. ... —
Whiting Corp. ..... —
Wiggins Teape & Alex Pirie —
Williams Apparatus Co. ..... —
Williams-Gray Co. ..... —
Wisconsin Wire Works ..... —
Wyandotte Chem. Corp. ..... —
Wyatt Metal & Boiler Works —

Yale & Towne Mfg. Co. . .. —
Yarnall-Waring Co. 17

PAPER TRADE JOURNAL BUSINESS STAFF

New York 36, N. Y. 49 W. 45th St. Plaza 7-2370

Arthur E. Gordon, Business Mgr.

Frederick B. Grosse, Production Mgr.

Francis J. Gordon — Alrick Man

CHICAGO 3, ILL.: H. K. Vinton
Room 1020, 79 W. Monroe St. CEntral 6-2784

PITTSBURGH 11, PA.: H. L. Poulton
610 Pennridge Road. HEmlock 1-1571

MIAMI, FLA.: Hal Moore
279 N. E. 79th Street

Rep. by McDonald-Thompson Co. in:

LOS ANGELES 5, CAL.: R. Teeter
3727 W. Sixth St., DUnkirk 7-5391

SAN FRANCISCO, CAL.: Cal Wood
625 Market St. YUkon 6-0647

DENVER 2, COLO.: Bob Heidersbach
222 Colorado Nat'l Bank Bldg. KEystone 4-4669

TULSA 4, OKLA.: T. R. Trautmann
2010 S. Utica. Riverside 3-1981

PORTLAND 1, ORE.: F. P. Ostrow
1423 S.W. Columbia St. CA 2-5146

HOUSTON 6, TEXAS: F. Vickrey
Room 214, 3217 Montrose Blvd. JAckson 9-6711

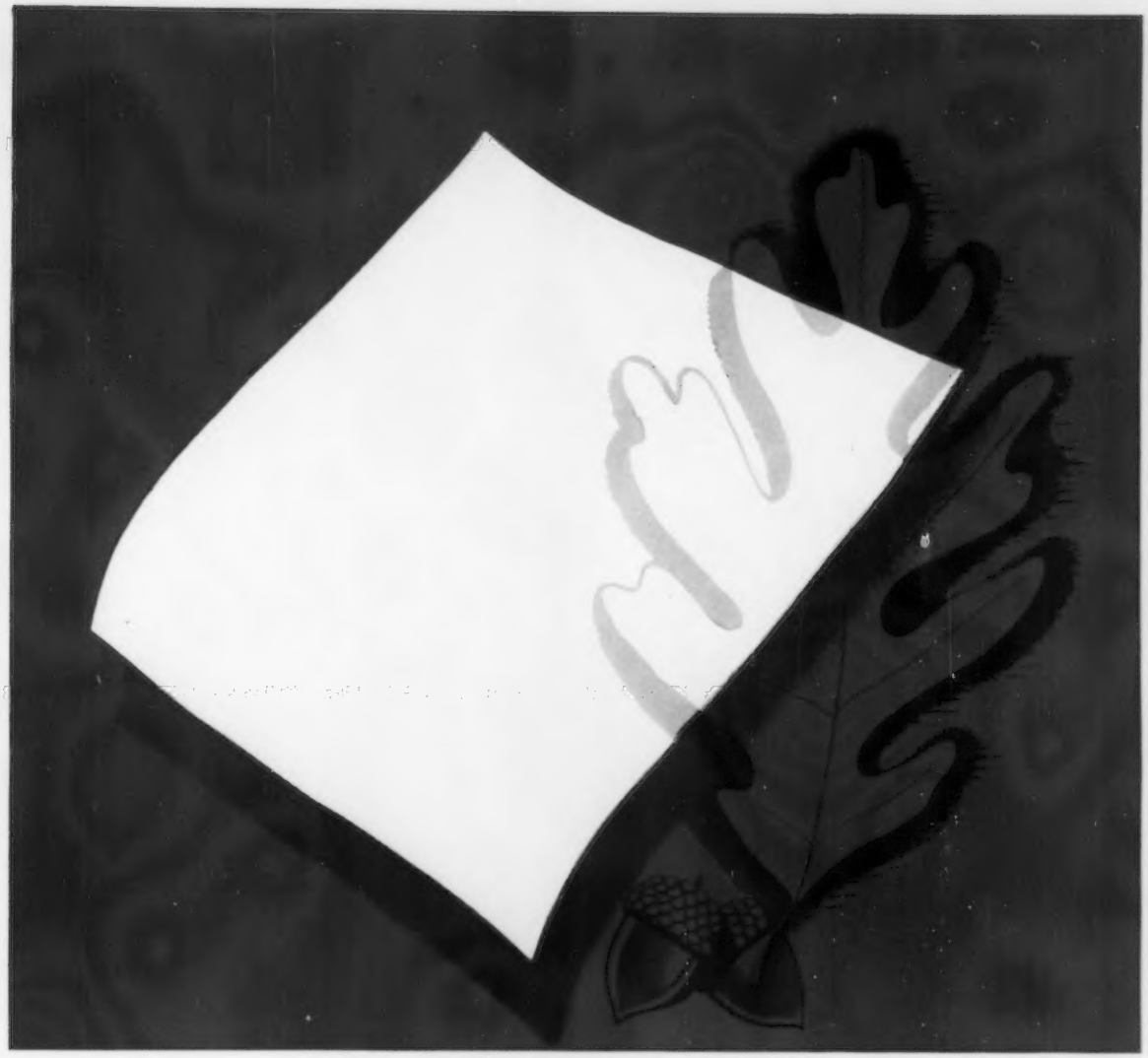
SEATTLE 4, WASH.: H. Abney
1008 Western Ave. MA 3-3766

Foreign Representatives

GERMANY: Herbert Morgenbesser
Kohlgarten 3, Hamburg—F. U. Phone: 59-82-03

UNITED KINGDOM: H. R. Vaughan
Publishing & Distributing Co., Ltd.
177 Regent St., London W 1, England Regent 6534

HUGHES PRINTING CO.
EAST STROUDSBURG, PA.



In cold soda pulp—

H_2O_2 bleaches brighter and whiter...

Experience shows that hydrogen peroxide is an effective bleaching agent for chip-groundwood pulps of all regions in this country.

It gives high brightness, low yellow color, excellent reversion resistance and preserves high yield.

Still another very important advantage—the higher you bleach with *hydrogen peroxide*, the greater the reversion resistance of the pulp.

Shell Chemical has experience bleaching chip-groundwood pulp from a wide variety of species. Our laboratory facilities and field engineers are available for bleaching studies and mill trials. Data on single-stage and two-stage bleaching processes can be placed at your disposal.

Your Shell Chemical representative will be happy to supply you with complete information on hydrogen peroxide bleaching of ultra-high-yield pulp.

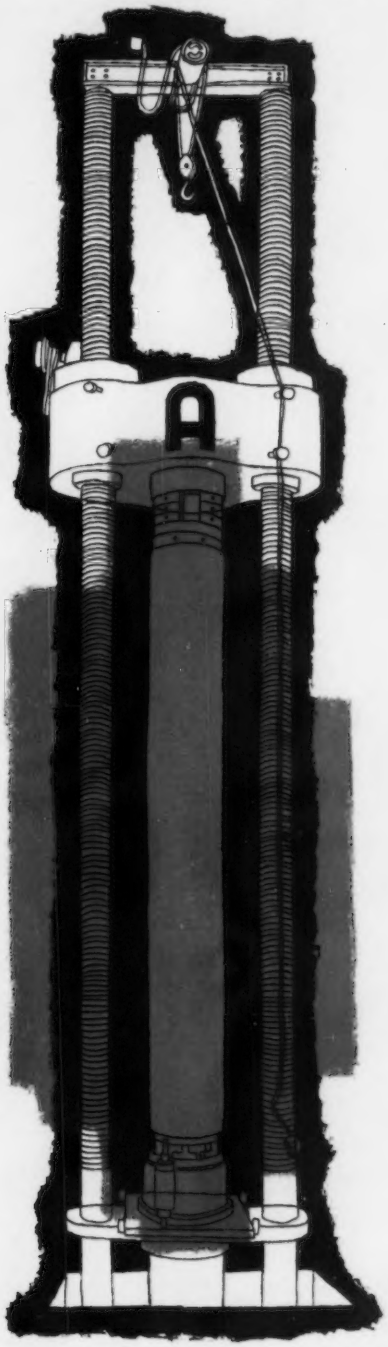
SHELL CHEMICAL CORPORATION

CHEMICAL SALES DIVISION

Atlanta • Boston • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco • St. Louis

SHELL

This Appleton roll press—the largest in the world—has 3500 ton hydraulic capacity, can handle rolls with over 300" face.



HERE'S A CHALLENGE AND A PROMISE: Appleton filled rolls will improve the performance of *any* calender you have! In the finish they produce and the tonnage they handle, Appleton filled supercalender and embossing rolls will turn in more profitable performance for you. New rolls built precisely to fill your needs . . your present rolls refilled. Special applications given immediate, expert attention.

APPLETON MACHINE COMPANY

APPLETON, WISCONSIN